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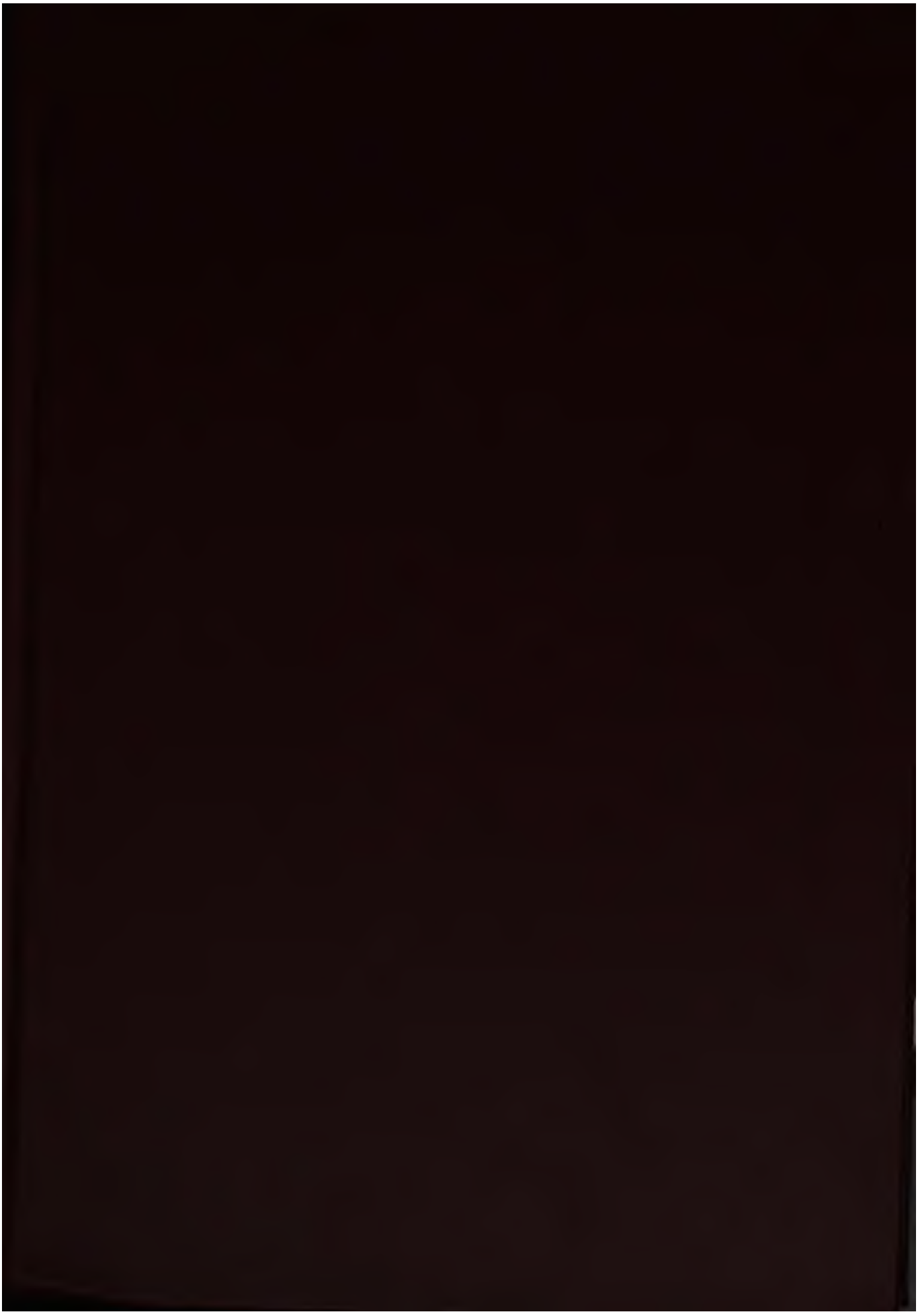

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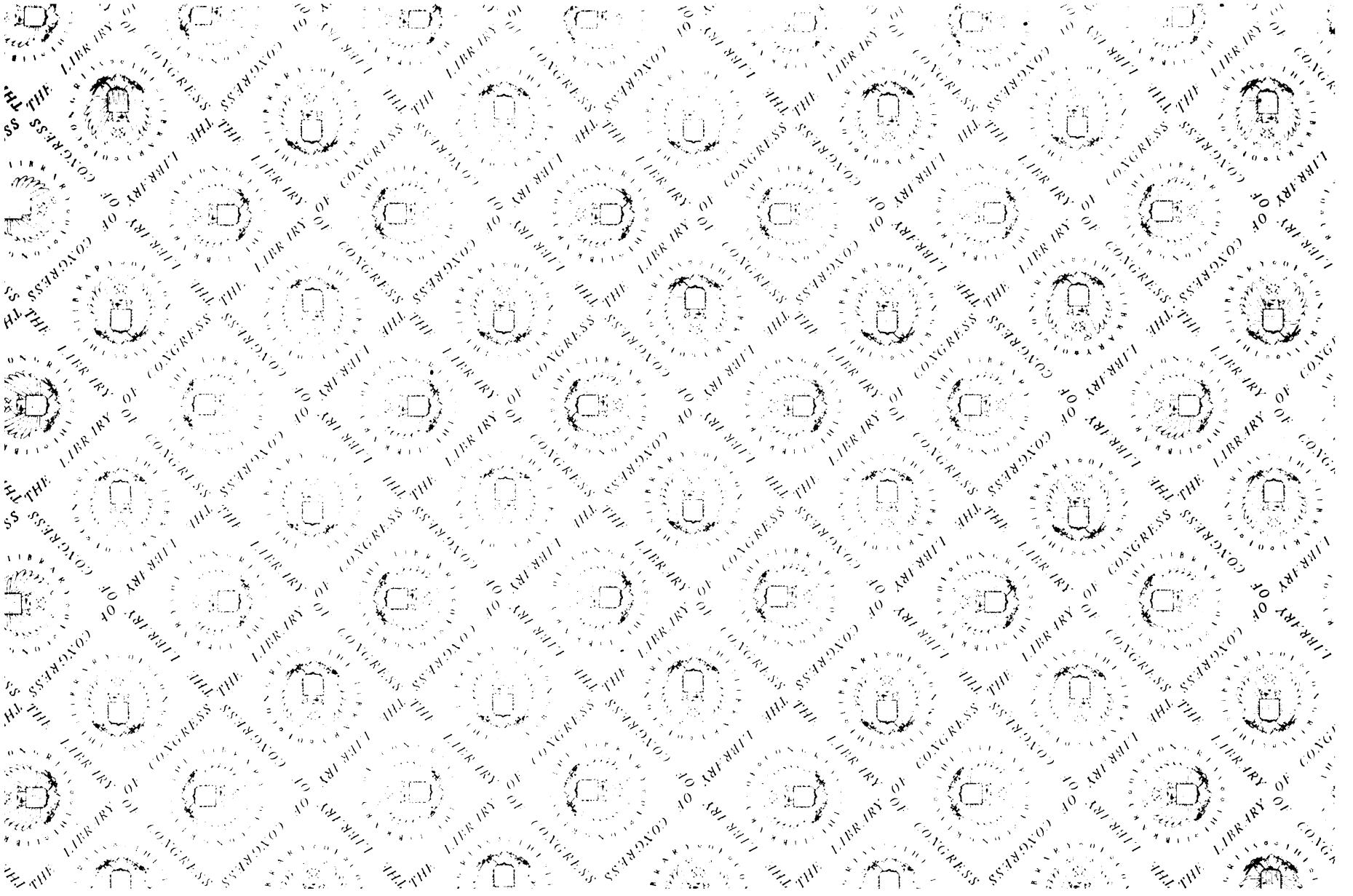
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The Journal of Horticulture

THE COTTAGE GARDENER:

A

PRACTICAL GUIDE

IN EVERY DEPARTMENT OF HORTICULTURE

AND

RURAL AND DOMESTIC ECONOMY.

CONDUCTED BY GEORGE W. JOHNSON, ESQ.

EDITOR OF THE "GARDENER'S ALMANACK," ETC.

THE FRUIT AND FORCING-GARDEN, by Mr. R. Errington, Gardener to Sir P. Egerton, Bart., Oulton Park.
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THE AVIARY, by a Naturalist and Bird Fancier.

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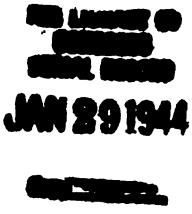

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TO OUR READERS.

ANOTHER volume is completed—another six months have passed—and the Spring leaves have come again. Upon that volume we look with entire satisfaction, for there is not a line we desire to blot from its pages; for those six months we have no cause but for gratitude; and with the Spring comes nothing but "smiles among its greenest leaves, and hopes among its flowers," for we are promised new sprays to weave among fresh shoots from our old standards, and we have such golden threads as the following to bind us all together:—

"All the land I possess stands in beau-pots at my window, yet I take in your Serial, and 'THE DICTIONARY'; have read every sentence, in both works, from the first to the last; have written marginal notes innumerable, and made extra indexes to each volume; and, I confess, that when I take up a new number of either work, after the fatigues of the day, I feel as if I were leaving the cares of the world behind me to take a pleasure excursion among fields and flowers." Now that correspondent resides in the Salisbury Square of London, yet THE COTTAGE GARDENER aids "the pure pleasures of floriculture" even in that locality so unsuited for gardencraft.

Another letter of a different aspect comes next; it is from Mr. G. Baker, Florist, of Wells, in Somersetshire, and it bears this unasked-for testimony.—"I shall be most happy to answer the enquiry of any person who wishes for information as to the profit to be derived from advertising in THE COTTAGE GARDENER. I have invariably received more orders from an advertisement in this valuable work than any other, not excepting the more aristocratic publications."

From fifteen other letters might we make quotations of similar encouragement, but we have extracted enough to show our readers somewhat of that which cheers us on to greater exertions, and sustains our confidence; yet we have greater praise—greater support—than those; for thus writes to us one, whom to know is to love:—"As a clergyman, and as, I humbly hope, a Christian, I beg to return, both to you and to the Authoress of 'My Flowers,' my sincere thanks for making your periodical subservient to the highest interests of man."

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WEEKLY CALENDAR.

M W D D	OCTOBER 3—9, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
3 Th	Jack Snipe comes.	29.520—29.206	61—45	S.W.	1.01	5 a. 6	33 a. 5	2 52	27	10 54	276
4 F	Sloes ripe.	29.479—29.037	53—33	W.	0.07	7	31	4 13	28	11 12	277
5 S	Walnuts ripe.	29.749—29.662	56—37	W.	0.02	9	28	sets.	●	11 30	278
6 Sun	19 Sun. aft. Trinity. Faith.	29.770—29.654	55—44	S.W.	0.46	10	26	6a.18	1	11 48	279
7 M		29.296—29.128	54—49	N.E.	0.02	12	24	6 44	2	12 6	280
8 Tu	Cherry leaves fall.	29.916—29.546	54—29	N.W.	—	14	22	7 13	3	12 22	281
9 W	St. Denys. Hazel leaves yellow.	30.018—29.951	56—28	W.	—	15	20	7 45	4	12 38	282

There are very few characters adorning the history of the present century, from the contemplation of which we derive so much satisfaction, as that of Dr. James Anderson. From boyhood to old age he was always in advance of his contemporaries, and as invariably did he rise to meet and to triumph over the adverse circumstances that encumbered his progress. He was born at Hermiston, near Edinburgh, in 1739, and bereft by death of his parents at the age of fifteen, the management of a thirteen-hundred acre farm devolved upon him. His parents had been so injudicious as to have neglected his education, on the insufficient plea that he was not destined for a learned profession, and thus an ill-instructed lad, just at that period when a parent's guidance is most needed, had to enter life as a manager and master. The odds against success were vast, but young Anderson entered into the contest like no common athlete. He was well practised in the routine of farming operations, for his ancestors had been in the furrow for many generations, and his father had employed him upon the farm; but young Anderson fully appreciated the need of other information to enable him to cultivate the soil with the best success. On his 1300 acres there were soils widely differing in fertility, and he sought for a teacher to tell him whence sprang the difference. He at once saw that that teacher is Chemistry, and he as promptly resolved to attend the lectures delivered on this science at Edinburgh, by Dr. Cullen. He here found a friend as well as tutor, for the Doctor duly appreciated what must be the character of one who, though so very young, had ventured to come out from the herd of the ignorant at that time cultivating the soil. Nor did he rest satisfied with acquiring a knowledge of chemistry, but he also studied botany and mechanics—siences, both intimately connected with the practice of farming; and we are thus told the consequence by one of his contemporaries—"he entered upon his farm at the age of fifteen, with knowledge superior to most of his neighbours, and an enterprising spirit which induced him to attempt improvements wherever they could be introduced with apparent advantage." His judgment was fully as conspicuous as his superior knowledge and enterprize, so that this youth stands now pre-eminent as one of the principal founders of that best system of farming established in Mid-Lothian. We have no space to devote to the numerous improvements he effected, but one which still remains prominent, the small two-horse Scotch plough, is a striking example. The use of this, in the place of the old heavy cumbrous many-horsed plough, has been, perhaps, the most effectual single element in elevating the agriculture of Scotland. In 1771 appeared his first literary effort, *Essays on Planting*; and it was the commencement of a series too long for us to enumerate, embracing many sciences, and in each leaving traces of his footsteps yet uneffaced. His *Practical Treatise on Chimneys* shows that correct knowledge of the principles on which a draught depends, that if those principles were kept in view by the architect we should not so often suffer from smoking fireplaces. His *Remarks on the Fisheries of Western Scotland* were so sound as to attract the attention of Government; and he was officially employed to survey and report upon the fishing capabilities of the district, yet he was never remunerated for the service. This was the more unjust, because, as he states in his correspondence with General Washington, Mr. Pitt promised him a suitable recompense, and had no better reason for withholding it than that he "dared to do so." In his writings upon *The Corn Laws* he clearly anticipated that discovery of the true origin of *rent* which has been attributed to Malthus, West, and Ricardo, namely, that it is "the difference between the cost of raising produce on the more fruitful and of raising it on the less fruitful soils." In 1790 Dr. Anderson—for he had ten years before been raised to this degree by the College of Aberdeen—established in Edinburgh a weekly periodical called *The Bee*. Here again appears a demonstration how much he was in advance of his times, for in that period of quartos and other dear forms of literature, rendering knowledge sealed against the many, he had upon his title-page—"a work calculated to disseminate useful knowledge among all ranks of people, at a small price." Dr. Anderson was a noble example to those who preside over our periodical literature. Avoiding all the petty squabblings, because he was above the petty jealousies, which show that editors think more of their own piques than the instruction of their readers, his pages are free from all personalities; and yet, when the occasion arose, he stood forth boldly to guard the rights of all connected with the public press. He was the only one of Dr. Cullen's pupils who took notes of his lectures; and when these notes were unfairly obtained from him, he at once crushed the attempt to publish them, fearing, as he said, "that his imperfect transcripts might injure the fame of his master." Again, when a series of *Essays on the Political Progress of Great Britain* so far excited the displeasure of government that the Sheriff of Edinburgh was directed to discover their author, Dr. Anderson refused to betray from whose pen they proceeded,—to use his own words, "I am personally responsible for what I have published." The inquiry was abandoned; but subsequently, when the author of those *Essays*—a creature named Callender—had the malicious audacity to attribute them to Lord Gardenston, a judge of the Court of Session, Dr. Anderson at once held up Callender to public scorn by avowing the truth. Callender fled to America, and died accidentally in one of its rivers.

About the year 1797 Dr. Anderson removed to the neighbourhood of London, and soon after commenced publishing a monthly periodical entitled, *Recreations in Agriculture, Natural History, Arts, and Miscellaneous Literature*, which extended to six volumes, and the essays in which may yet be consulted with advantage, and the typography of which is pre-eminently beautiful. Infirmities now came upon him, and he resigned himself to the relaxation of a quiet life, solaced by intercourse with a large circle of literary friends, and the cultivation of his garden, which became "the miniature of all his past labours," and in connection with which he published, in 1803, *A Description of A Patent Hothouse, which operates chiefly by the heat of the sun.* The concluding scene now approached; and we will tell of it in the words of one of his biographers. "He was a man of strong constitution and of temperate habits, but as he advanced in life the intenseness of his literary labours hastened his death, which took place on the 15th of October, 1808. His character is described by those who knew him as kind and generous, and his conversation as animated and full of apt illustration. He had a wide circle of personal friends among the eminent literary men of his age, and carried on an active correspondence with them, though he said of himself, 'You know that I would rather walk a dozen of miles than write a letter at any time; I always put it off till the last hour.'" He was twice married, and had thirteen children, only one of whom survived him. It is due to his memory, as well as to the justice of government, to record that that survivor received a pension, "in consideration of her father's services."

Meteorology of the Week.—From observations made during twenty-three years, at Chiswick, the average highest and lowest temperatures there during these seven days are 62.2° and 42.8°, respectively. The greatest heat observed, 80°, was on the 5th in 1834; and the lowest, 29°, was observed on several days. The number of fine days during the period were 81, and on 80 days rain fell.

Insects.—About twelve months since we heard of a patch in a pasture eaten bare by the caterpillars of the Antler Moth, which made us quite ready to assent to Mr. Kirby's observation—that it is "the greatest enemy of our pastures." Fortunately, it is of rare occurrence in this country. It is the *Cerapteryx* (*Charæas* and *Bombyx*) *graminis* of entomologists. This moth, represented of its largest size in our drawing, is generally altogether of a grey brown colour, with a slender whitish line running from the base of the fore-wing along its centre vein, and branching along its branches. Another whitish line runs along near each edge of the fore-wing; near the point of the wing is a row of triangular dark spots. There are also two dark kidney-shaped spots near the front edge. The hind-wings are yellowish brown, with a dark circular spot in the centre of each, and various dusky bars. The caterpillar is green, with brown spots, and smooth. In the few instances it has been found in this country it appeared in June. Mr. Kirby says, "It is said not to touch the foxtail grass. In the years 1740-41-42-48-49 they multiplied so prodigiously, and committed such ravages, in many provinces of Sweden, that the meadows became white and dry, as if a fire had passed over them. In 1759, and again in 1802, the high sheep-farms in Tweedale were dreadfully infested with a caterpillar, which was probably the larva of this moth. Spots a mile square were totally covered with them, and the grass devoured to the root."

Carbonate of Ammonia, so generally known as "smelling salts," comes next in our alphabetical list of manures; and to reanimate the fainting human being and to invigorate the growing plant are not such dissimilar powers, as may appear at first sight, to be found in one chemical preparation. The very grass the gardener tramples on, the meanest weed upon his borders, is so highly organised, so exhibits intimations of having functions similar to those more highly developed in superior animals, that it is not possible to point out

where animal life terminates and where vegetable life begins:—the zoophyte, or plant-animal, connects the two kingdoms.

To determine whether plants possess a degree of sensitiveness is not so easy as many persons may believe. "It is as difficult," says Mr. Tupper, who has written ably upon the subject, "to ascertain the nature of vegetable existence as to determine what constitutes the living principle in animals." Darwin, by the aid of imaginary beings similar to the Dryads and Harmadryads of the classic mythology, has raised plants to a position in the order of nature superior to that to which animals are entitled. Other philosophers, taking a totally antagonist opinion, estimate vegetables as bodies, only somewhat more organised than crystals, but, like these, entirely and exclusively subject to chemical and mechanical changes.

The above opinions are equally erroneous, for it might easily be made to appear that the gradation from reason to instinct, from instinct inanimation, is as gradual as the transitions of light from the noontide to the midnight of a summer's day; but our few remarks must be confined to that section of creation that commences from the close of the animal classes in the zoophyte, and terminates where inorganic matter commences in the crystal; and the details must be specially directed to demonstrate how closely it approaches, how distinctly it is divided from, the former.

Let us first consider the comparative composition of animals and plants demonstrated by the researches of chemists. Their constituents are identical:—carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, acids, alkalis, earths, and metals are the common components of both. Nitrogen has been considered by some chemists as the constituent, marking by its presence animal from vegetable matters; but the distinction fails, inasmuch as that from some animal matters it is absent; whilst in the gluten of plants—a chief constituent of wheat—in all seeds, and in the whole frame of the tobacco, it is present.

If we follow the above chemical bodies through their combinations, we shall find that these in animals and plants are closely similar, and in both are equally numerous and intricate.

ANIMALS.	VEGETABLES.
1. Sulphuric	1. Sulphuric
2. Phosphoric	2. Phosphoric
3. Muriatic	3. Muriatic
4. Carbonic	4. Carbonic
5. Benzoic	5. Benzoic
6. Oxalic	6. Oxalic
7. Acetic	7. Acetic
8. Malic	8. Malic

and others equally numerous in each, but not common to both. Of the earths and alkalis, lime, magnesia, silica, soda, and potass, are found in each class. Of the metals, iron and manganese are their conjoint constituents.

If we follow the two classes through their more compound constituents, we shall find the analogy still they contain, in common, sugar, mucus, jelly, colouring, and other principles, gluten, fibrin, oils, resins, and extractives.

The functions of animals and plants are similarly closely analogous. Animals take in their food by the agency of the mouth, and prepare it for digestion by various degrees of mastication or attrition, as in the gizzard of birds. In this they differ from plants, but these have this compensation, they imbibe their food in a fluid form, and consequently in a state of the finest possible division. Animal and vegetable remains are their common food, plants having this superiority over animals, that, as they only absorb the soluble and finer parts, they are not obliged to throw off the grosser constituents which appear in the excrement of animals, though there are excretions given off from every part of plants differing probably in every genus. In the animal stomach the food undergoes an extensive change, being reduced to a pulp of greater specific gravity, and being altered entirely both in taste and smell. In the lymphatics of plants, which may be considered their primary organ of digestion, their food or lymph undergoes a change precisely similar; its colour and flavour are altered, and its specific gravity increased.

From the stomach the animal's food passes into the intestines, is there subjected to the action of the bile, and converted into chyle, the nutritive part, and excrementitious matter. In their passage through the intestines the chyle is absorbed by the lacteal vessels, and is conveyed into the blood; by the heart, the mingled fluids are propelled into the lungs, to be there exposed to the action of the air. The vital fluid there changes its purple hue for a florid red, loses a portion of its watery particles and carbon; the latter combining with the oxygen of the atmospheric air in the lungs, and being breathed forth in the form of carbonic acid gas.

As plants in their food take in no gross, unnecessary ingredients, it is obvious that no process like the biliary operation is required. The lymph or sap, proceeding at once along the branches, is poured into the leaves, the very lungs of plants. There, as in the blood, its colour is changed, oxygen is emitted from it during the light hours of the day; but carbonic acid gas is thrown off during the night, and at all periods a considerable quantity of water.

From the lungs, by the agency of the heart, the blood is propelled through the arteries over the whole animal system, supplying nourishment and warmth to all the parts, and where, by these abstractions, being again converted into purple or venous blood, it is returned by the veins to undergo the changes that were described as being effected by the lungs.

The sap, after exposure to the action of the air in the leaves, is returned by another set of vessels situate in the bark, ministering to the growth and support of the whole plant.

Such is the close similarity in the digestive and circulatory processes of the two classes; a similarity which obtains in all the other functions enjoyed by them in common. In respiration, the air inhaled through the

mouth and nostrils proceeds immediately to the lungs and acts upon the blood; in plants, when it is inhaled by their leaves, it operates instantaneously upon the sap. The changes that take place have just been imperfectly noticed, and we have no space to do more than add, that the oxygen of the atmosphere is the gas essential to the existence of animals; but it is its carbonic acid that is quite as important to vegetables. They may be considered the vital airs of the two classes. If animals are placed in a situation where they inhale pure oxygen, their functions are highly and rapidly increased; but it is an exhilaration which would soon terminate in exhaustion and death, if breathed by them for any extended period. So plants will flourish in an atmosphere containing 1-12th of carbonic acid, but if it much exceeds this proportion, they are rapidly destroyed. During sleep, animals respire less carbonic acid than during their waking hours; so plants emit little or no oxygen during the night.

After an animal has enjoyed the regular course of its functions for a period varying in its duration, the time at length arrives when decay commences. The wasted, enfeebled, and relaxed form gradually declines, until death finally closes all activity. The body then becomes contracted and rigid; the skin changes the ruddy tinge of health for death's pallid hue. Decomposition speedily ensues, with all its offensive phenomena; and finally, the only permanent remains are the skeleton and a small amount of earthy matter. The same characteristics attend the last period of vegetable existence. Plants may flourish only for one season, or their lives may be extended through centuries of years, yet decay eventually comes over them; becoming more and more stunted, weak, pallid, and ragged, they eventually cease to live, become contracted and rigid, and pass through the same phases of putrefaction that are exhibited by the animal carcass. In both there was a time when warmth and exposure to the atmosphere were the sources of vigour —these now become the agents of destruction; they were once able to resist and to overcome the laws of chemical affinity — they now are destroyed by their attacks. What causes this most striking change? What antiseptic agent have they lost? There can be but one reply. It was their vitality. Now, let us examine how the vitality of plants in other respects resembles the vitality of animals, and we will confine this examination to two or three points.

Plants are excitable. Light acts upon them as a stimulus. Every body must have observed that plants bend towards the direction from whence its brightest influence proceeds. M. Bonnet, the French botanist, demonstrated this in some very satisfactory experiments, by which he showed that plants grown in a dark cellar all extended themselves towards a small orifice admitting a few rays of light. Every flower almost has a particular degree of light requisite for its full expansion. The blossoms of the pea, and of other papilionaceous plants, spread out their wings in fine weather, to admit the solar rays, and again close them at the approach of night. Plants requiring a powerful stimulus do not expand their flowers until noon, whilst some would be destroyed if compelled to open in the meridian sun. The night-blooming cereus unfolds its flowers only at night. Heat also acts as a stimulus upon plants. M. Duhamel observed, that during moderately fine weather the foot-stalk of a leaf of the sensitive plant (*Mimosa pudica*) stood in the morning at an angle with the lower part of the stem of 100°; at noon, the angle had increased to 112°, but at night had fallen to 90° If a leaflet of this plant be but slightly touched, it immediately shrinks away; and the impulse being communicated, each pair of leaflets on the branch collapse in succession; and if the impulse be strong, the very branch itself will sink down by the side of the stem. If an insect alight upon the upper surface of the Venus's fly-trap (*Dionœa muscipula*), its sides spasmodically approach each other, and crush to death the intruder. If the inner side, near the base, of any one of the anthers of the barberry (*Berberis vulgaris*) be gently touched, as with a bristle or feather, it instantly springs forward and strikes against the stigma. But the strongest indication of the existence of a species of sensitive principle in a plant is, perhaps, that exhibited by the *Desmodium gyrans*. It is a native of India, growing on the banks of the Ganges, but may be seen in one of the stoves at Kew. Its leaves are ternate, the middle leaflet being larger than the lateral ones. All of them at intervals are in vibratory motion; sometimes equably, at other times abruptly, but without any unison in the movements. If their motion be prevented, by grasping them in the hand, they renew it more vigorously when the confinement is removed, but by degrees subside to their natural rapidity of motion. This motion does not depend upon the application of any external stimulus, for it continues throughout the night as well as the day. It is most active during a warm day, the leaves then having an additional tremulous motion.

If other evidence be required, let us remember that some plants close their flowers invariably when rain is approaching. Others have an unalterable direction assumed by them when climbing. No force can make one twist round a pole from left to right, if its natural direction be from right to left. If a garden pot be divided by a vertical partition, and one half filled with a poor sterile earth, and the other moiety with a rich fertile soil, a geranium or other plant placed in this pot, with some of its roots over the sterile soil, and the rest of the roots over the fertile soil, those over the first named portion will gradually change their direction until they can also get into the richer pasturage. Instances have been known of the roots of trees piercing and destroying walls in their efforts to attain a more preferable soil than that in which they were planted. M. Saussure relates that he placed some plants of *Polygonum persicaria* and *Bidens cannabina* in water containing acetate of lime in solution. These plants then imbibed, with the water, a portion of this salt; but when they had the opportunity of selection given them, by dissolving in the water some common salt, glauber

salt, and acetate of lime, they absorbed the two first named, but rejected the latter entirely.

From the foregoing facts, without arguing that they demonstrate sensation to exist in plants as acute as that possessed by the higher or more perfect classes of animals, yet they certainly are satisfactory evidence that plants probably are nearly as sensient as the zoophyte, or even as the polypus and the hirudo—animals that may be cut into pieces, and each section become a perfect individual; animals whose heads may be taken off and grafted upon other bodies; animals that may be turned with their outsides inwards, and yet without any apparent inconvenience. If plants be endowed with sensation of the most limited degree, it explains the cause, throws light upon the prevention of many diseases that affect those which are the object of cultivation; warns the tiller of the soil from the late performance of many of his operations, and teaches him generally to be less violent in his practice. If a grape vine be pruned too late in the spring, the bleeding or effusion of sap has been known to be so violent, that the tree has died from absolute exhaustion. Stone fruits, if severely wounded, are frequently destroyed by the inroads of a disease resembling in all its characteristics the cancerous affections of animals; and we have known a whole crop of wheat affected with a swelling of the stem or culm, evidently caused by an extravasation of the sap from its ruptured internal vessels, owing to the roller being passed over the crop when of a growth somewhat too forward. Moreover, if plants possess sensation, it throws light upon the operation of manures, especially of those containing ammonia, but we must defer our consideration of this until next week.

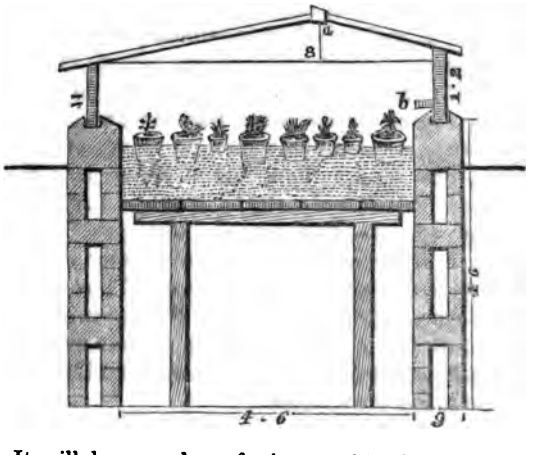
We thus prominently draw attention to our having announced on the first page of our last number, that we purpose to devote a space to an announcement of the plants any one is willing to exchange for other plants. We are confirmed in our resolution by the following letter, since received from a clergyman:—

"Would it be foreign to the design of THE COTTAGE GARDENER, or prejudicial to the interests of the nurserymen, if you were to allow a small space in your columns in which your readers could give a list of *desiderata* which might be supplied either by professional gardeners or by amateurs? I hope I am not guilty of any presumption or impropriety in making this suggestion. I do so, because I often throw away scarce plants when I am parting them, and it really grieves me to do so; and I sometimes lose plants which I find it difficult to replace. Last year I moved almost the whole of my collection; the operation took up more than two months, and I think several cart loads of plants were thrown upon the dung-hill; many of them were probably scarce, as my collection is a very old fashioned one."

THE FRUIT-GARDEN.

THE HORTICULTURAL STRUCTURES OF THE AMATEUR: PITS AND FRAMES.—At page 364, we adverted to the old fashioned houses with north lights, and which were badly superseded with modern acute-angled lean-to's; we have now to recommend the same principle applied to pits for general purposes. Whether heated or not, we do think, that every amateur should possess a pit or two with a north light; such things are, indeed, uncommon, but that does not disprove their utility.

Our reason for recommending such a pit for ordinary or for general purposes are as follows:—First, since the great improvements in the manufacture of glass, we are persuaded that many inexperienced persons, or those who do not keep a regular gardener, suffer very considerably during bright and warm periods, by a too intense heat during the middle of the day; suffer more indeed than they are immediately aware of. A north light pit then, with as flat a roof as possible, will prove a self-protector. There will also be found a degree of compactness and a facility for conducting operations attached to such a pit, not possessed by our sharp-angled lean-to pits—to borrow a phrase not *strictly* applicable. Again; the ventilation of such a pit will be effected with much greater ease, with more precision, and with less danger of deranging or soiling the dresses of our lady amateurs: we would not have the lords of the creation suppose, that we write only for *them*. We feel strongly, that, in conformity with the well known gallantry which all our astute neighbours on the Continent accord to John Bull, one half—and to use an Irishism, the biggest half—of our labours should be directed to our lady amateur performers; from the wife of the true English cottager all the way up to Her most gracious Majesty the Queen; for we happen to know that THE COTTAGE GARDENER has found its way within the halo that surrounds Royalty. Well, then, it is either a lady's pit or a gentleman's pit—or even a lucky cottagers—who happens, as our good friend Beaton would perhaps say, in gude braid Scotch, "to be getting endways." We must now beg permission to give a sketch, for we fear a written description would scarcely suffice, and we are unwilling to risk a misunderstanding, for such is a grievous affair.



It will be seen by referring to this sketch, that it may be applied to almost any purpose, from a mere hybernatory (place for winter protection), to the culture of the pine-apple. Cucumbers or melons would be quite at home in such a structure; and those who merely wanted to winter their pot plants, might employ it the whole spring and summer in this way. The pit, according to the sketch, is very narrow; this is to adapt it to the culture of early melons or cucumbers; for in case of its being employed in that way, it would be necessary for the two linings to act somewhat in concert; there is, however, no other reason why it should be confined to the precise width of the sketch; for by making it wider, and by introducing a board lengthwise

beneath the apex, the north lights might be confined to pots, cuttings, &c., whilst the south portion was occupied by cucumbers and melons. As for the interior fittings, and the manner in which the pots are supported, whether by a stage, a flat shelf, *b*, or merely placed on the soil of the old cucumber bed, that may be determined by those who erect it, keeping steadily in view the purposes for which it is intended. It need scarcely be remarked, that if it were tank heated, it would be, indeed, a very complete affair, and it would of course then be well to support the false bottom on masonry. In such a case, the necessity for using hot manure as a source of heat would be done away, and the structure would thus admirably suit those who cannot obtain a permanent supply of fermenting materials, or who have other uses for them. A pit of this kind might stand in the flower-garden without in any way derogating from the style of the scenery, and if the north or back could be placed near a wall or fence, which constitutes the boundary between the flower-garden and the kitchen-garden or the court-yard, the fire-hole, if tank heated, might be placed on that side, thus leaving everything neat and systematic within.

It will be understood that both north and south lights, independently of each other, lift *upwards* by means of hinges along the apex, *a*, of the roof; thus by having an iron rod graduated and swung opposite each light, with a catch for each in the pit lights, ventilation may be accomplished with facility to any degree. Amateurs who do not like to come in contact with dirty materials, may thus get instant access to any part of the pit with ease; and as for the north portion—supposing it to be occupied with pot plants—the moderate sized north light may be almost lifted with the finger and thumb.

Hollow walls should by all means be adopted; they are a capital defence against damp, that enemy to warmth; such is known to creep from brick to brick in the most insiduous way by capillary attraction. Hollow walls then—well known non-conductors—are averse to that speedy counterchange between inner and outer temperatures, which in severe periods acts so suddenly and so prejudicially. Little more need be said concerning this simple pit; we may now offer a few general observations.

In whatever way pits may be constructed, or frames placed, there can be but little doubt that it is, as a general maxim, well to place a considerable portion of the structure below the ordinary ground level. This is a point not sufficiently understood or attended to, and it is matter for consideration with all who can understand that there are collateral points connected with the formation of artificial climates, which ought to form essential parts of the preliminary calculations in such matters. It is still however a question for consideration, how the balance stands between the gain which is made by taking low levels, and thus avoiding the great vicissitudes occasioned by cutting winds, and the loss which may accrue through underground damps. Our opinion certainly preponderates in favour of low levels, but then we would make a most thorough drainage the groundwork of the whole proceeding. In this, as in many other cases, so much depends on the locality, and the facility that exists for getting rid of underground damps, that it is by no means wise in those who take upon themselves the task of offering advice, to attempt to lay down a set of universal rules under the dignified title of principles. It must suffice, on such occasions, to trim the lamp anew, and by its light to point to shoals and sand-banks, as also to show the way to a quiet roadstead. We will shortly resume this subject, which deserves the most attentive consideration.

R. Errington.

THE FLOWER-GARDEN.

Some fifteen years back I used to wonder why everybody did not grow the then new *Tacsonia pinnatistipula*, but now called the old one, as with me, in the west of England, it was one of the best out-door climbers I had of the half-hardy race. From the end of August to Christmas, unless the fore-part of the winter was very severe, it used to flower most profusely at every joint of the young wood, and the plant was so vigorous and healthy that it extended a long way up and down between the front lights of a conservatory and along the top of the upright glass. To keep it clear from the glass, so as not to shade the plants inside, we used to train one shoot over another, so that in time they formed a kind of rope, and the flowers hung down as thickly as if they had been stuck on to see how many the rope would hold. I knew, also, that the plant did equally well in two more places. It was quite cheap, and there were plenty of them in the nurseries; and yet one might travel a hundred miles and not see one of them in a garden; and when you asked for it, or for the reason why such a charming thing was not to be seen, the gardener would turn quite fierce and say, "hang the *Tacsonia*, and the writers who recommend such rubbish!" I knew very well the *Tacsonia* would answer to be hanged in any direction, but should not much fancy to try the experiment on the "writers." The explanation which would follow made it clear enough that this *Tacsonia* was very particular as to the kind of soil in which it would do well in; but as we know that two soils may look exactly alike, and even give the same results under the tests of the operating chemist, and yet be as different in their effects on certain kinds of plants as chalk and cheese on the palate, there is nothing for it but to try by actual experience which plants will suit our garden; and I want to lay some stress upon this, as we are too often prone to be led away by the results of experiments carried on by our friends or neighbours; yet to "hang the thing" because friend somebody has failed with it, is not the best way of going to work; we must break the ice and prove for ourselves.

Since the time referred to I have learned that this *Tacsonia* is as much given to sulks as they said—red spider and bad leaves going the same journey with it to disappointment and vexation—not a healthy shoot in a twelvemonth—and for some years I gave up the plant altogether. But I have returned to it again with that kind of interest one feels for an old schoolfellow, and have succeeded; and I would urgently recommend to those who have also tried and failed with it, to try it once more; for when it does well it is the best of all the Tacsonias, with the exception of *manicata*, which, perhaps, is the richest thing among all the Passion-worts. This brings me to our dictionary again; for if a reader who never heard of a *Tacsonia* before was curious enough to learn what sort of plant it is, if I did not call it a passion-wort, how could he know but I was alluding to some kind of scarlet runner? or, if I had said that it belonged to the sixteenth class of the Linnæan system, he would not have been much the wiser, even if he had known two-thirds of the plants in that class; for it would be as likely as not that he would take the Tacsonia to be a mallow-wort. But almost everybody knows a passion-flower; and all that do would have no difficulty to see with the mind's eye what sort of climber I have been writing about, when I said it was a passion-wort. Here, then, is the grand use of learning to look on plants in natural-looking groups. Take the Daisy-worts—the Gowan-worts of childhood—as another instance. Everybody knows a daisy; and although the order to which the daisy belongs comprehends a greater number of plants than the number of all the plants which Linnæus and his contemporaries

had any knowledge of, you might teach a child in three lessons to learn to distinguish a plant of that natural assemblage of species from the rest of the plant creation. Michaelmas daisy, dahlia, French marigold, China aster, coreopsis, sanvitalia, and cineraria, with artichokes, thistles and dandelions, are each and all of them compound flowers like the daisy; and no one who knew these, or even only one or two of them, could ever mistake a compound flower—a DAISY-WORT as we call it—from other flowers. Unless when any of them are what we call double, most of them have the bull's eye centre, common to the daisy. It is true that some of them—as, for instance, the thistles—want the bull's eye; but still there is a collection of little flowers in every one of them which make up one individual flower. If you were to take a single or a double dahlia and pull it gently to pieces, it would reveal a secret. Every little piece or quill (or floret, as the learned term it) would be found to be a perfect flower of itself, having its own stamens and pistils, pollen and all, as perfect as a tulip. Therefore, one dahlia must be a compound flower made up of these little florets, and it is just the same with the thousands of plants which compose the compound order of plants.

Now, if I was writing about some new plant, which no one in England had ever seen before, and were to say that it was a composite plant—which is a better word than compound plant—every reader who knew a daisy would know at once what kind of flower this new plant must have, which, of course, would be a great assistance to the memory in minding the name of it. But whether this new plant, or rather flower, had a bull's eye centre like a single dahlia, or had the centre filled up like a Scotch thistle, could not be made out from the word *composite*—the English name of the order. Here, then, is a loose screw. We know the new composite plant is a compound flower, but whether or not it looks like a China aster, or a French marigold, or a thistle, who can tell? Now, to make the whole clear enough to a new beginner, or an old practitioner, botanists have divided large orders of plants, of which this composite order is one of the largest, into separate parcels. Every plant in each parcel will, therefore, show its flowers very much like the rest of the plants in that parcel. It follows, then, that in writing about this new plant I ought to say what parcel it belonged to, as well as that it was a composite plant. Now all this will be done in the new dictionary, and very simply too.

Let us take an instance, and suppose that a friend has just returned from California with gold enough to pay the interest of the national debt, and a hatful of new plants, which he shows to a clever botanist, who finds one new plant amongst them which was never named before; and we shall say that this new plant had a beautiful flower, as yellow as gold itself, and looked as much like a common thistle flower as could be. The botanist, wishing to compliment our fortunate friend, offers to name this flower after the man of gold, but he would rather not be complimented by a yellow flower; to a scarlet flower he would make no objections; but he saw too much of those yellow ones to have any desire that his name should be associated with such a crew; and the botanist has it all his own way—just the very thing he wanted—for now he has a good opportunity to manufacture a new name that would be *expressive*, and, after some consideration, he fixes on the name as the *golden flower* from the *gold mines*. If he were to put it into this English garb, no foreigner, who did not understand our way of talking, could make out the meaning of the name, and that would never do; so he must translate the name into some dead language—the ancient Greek or the Latin are the usual tongues to get hard names from; but, like me, he is not much of a scholar, and he will be content with the Latin itself this time, and calls the new yellow thistle-like plant *Auraria auricoma*, and says it belongs to the same parcel of composite plants as the thistle, and gives a long account of it—in pure Latin, of course—so that all those who understand the verb *amo* may understand him too; and if the new plant were to be put into our new dictionary, we must translate the name back again after this fashion—AURARIA. From *Auraria*, a gold mine; the plant being from the gold mines in California. Natural Order: *Compositæ*—allied to the *thistle*. Now the new plant turns out to be one of the compound or composite species without the bull's eye—but looking very much like a thistle, because it stands in the thistle alliance; and we have only to make out now what *Auricoma* means, and we shall be as wise as the man of *orders* himself who first gave it the name. Then this *Auricoma* means golden hair—from *Aurum*, gold; and *coma*, hair. The silky threds composing the flower head of a thistle being likened to "a fine head of hair." So that all this palaver ends at last in a "yellow-haired laddie" from the gold mines of California. Yet the thing has a real and expressive meaning in it, and so have all the hard names with which we, in our innocence, often find so many faults. But we are obliged to put more than this in the dictionary about the same new plant, because there are so many to please. The learned call composite plants *Asteraceæ*—that is, asterworts or starworts—because most of these flowers look, at a distance, like so many stars of the different degrees of magnitude. Then, after the learned come the children of the mist, who, if tradition be true, were exchanged in their infancy by the fairies for their own little sprats; they, too, must be humoured in the new dictionary, and nothing in the way of plants will go down with them but what smacks of Linnæus himself; so the Linnæan class and order are put in to suit their fancies. Then come the ways of sowing the seeds, or getting the plants from cuttings, the kind of soil best fitted for the different sorts, and many more things besides, which are very necessary to know for those who would be knowing themselves.

Now, if it were only for the curiosity of the thing, it would be worth while to buy a few numbers of this new dictionary, and see all this for oneself; and if it is not thought worth three-halfpence the number, why then it might be given up, and penny cigars bought instead, and a halfpenny saved to boot.

In ploughing up for this dictionary, it so happens that my worthy friend Mr. Appleby is put alongside with me in the collar; and, lest some people might think that he kicks over the traces at times, because he once said that he thought it *pedantic* to teach ordinary mortals so much learning, I must say, in justice to him, that a more steady *puller* could not be found—no, not in Suffolk itself; and for the rest, I can see no slackness in the traces of the foremost pair, nor feel that those behind us allow us more than our share of the draught, and I have not heard a single crack of the driver's whip yet; nevertheless, it is all up-hill work.

To return to the passionworts, and to Tacsonia: it stands in the dictionary thus: "TACSONIA. From *Tacso*, the Indian name of one of the species in Peru. Natural Order, *Passionworts* (Passifloraceæ). Lin. 16—*Monadelphia; 2—Pentandria*. Although the Tacsonias are very distinct from the passion-flowers, they resemble them so much in habit and general appearance that a common observer might see little difference between them, except the long tube of the flowers of Tacsonia. They inhabit a belt or zone in Peru, immediately above the region of the passion-flowers, and therefore are more hardy with us. The fruit of *T. mollissima*, and of two more species not yet in cultivation, are eatable. For propagation and culture, see PASSION-FLOWER." Then follow the names of the different species, with the year of introduction, native country, &c. Here, then, the

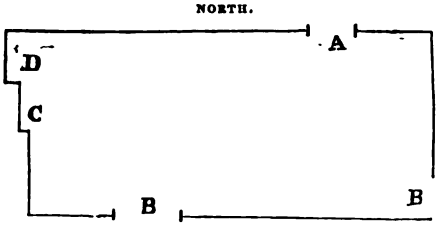
young student or cottager has the scientific name of this climber, the meaning of the name explained, the order to which it belongs given in English, that order repeated in the learned form within two strokes, and the Linnæan reader has the class and order of his system given in numbers and by name. Could anything be done more precise, or more to the purpose? Besides all this, we have the reason why the Tacsonias are more hardy in England than the generality of passion-flowers, and the fact that the fruit of three kinds are good to eat. The only explanation wanted here is the *alliance*, as was given for the thistle section of the Composites; but in reality the alliance is given, though not under the head *alliance*, when it is said that Tacsonias differ very little from the Passion-flowers—that of itself stamps the true alliance at once.

Now, in hunting out all this many books are to be referred to, and if such books were carefully put together the work would be very agreeable and exciting. It is true that in our day books are made with more care than they were in Dr. Hornbook's time, when, as Burns tells us, some books were "lees frae end to end." Still I was very much surprised at finding some of our books of reference with "lees" in every one of its pages, and just in the very book where I least expected to find them; but in general our books are more free from errors than those of any other craft—some of them not having a single error in a thousand pages. Foremost among the best of them stands Dr. Lindley's "Vegetable Kingdom." Every one who is fond of scientific truths referring to plants, and could spare thirty shillings, should have this book—a monument of perseverance and scientific skill—and read it over and over again, as I have done, and sat to it again and again with increased relish.

But after all this, and much more besides, the new dictionary, or any other book, cannot tell us the reason why the first *Tacsonia* is so particular about soil—so particular, indeed, that it is hardly to be met with, although one of the finest late autumnal half-hardy climbers we have. Now, such matters, if we are to understand them at all, must be discussed periodically, until facts accumulate sufficiently to enable us to draw the right conclusions from them, and then lay down rules for future guidance. In the very same border where I have failed for years to do much good with my favourite *Tacsonia* on its own roots, and also grafted on the common passion-flower, I have it now in the most flourishing condition, simply by grafting it on *Tacsonia mollissima*—another good climber for this time of the year, but to my fancy not nearly so fine as the old one, *T. pinnatistipula*. There is a third one called *T. manicata*, which is by far the finest of the family, as I was lately told by a Londoner, the best judge of such things within the circle of my acquaintance. I have only had this third species this season, and I worked it also on *mollissima*, against an open wall, where I expect soon to see its beauties for myself. I was told by my friend that only one gardener has yet succeeded in flowering this *manicata*, and therefore I suppose it also will turn out to be fastidious about soil and situation, and that the surest way to get over this habit is to work it on the *mollissima*, which seems at home in any good garden soil.

Like many other strong climbers, the pruning-knife is their bane. By far the best way to manage young plants of them is not to prune them at all, but to thin their leaves very much in summer. If that does not keep them from being overcrowded, disbud them in great numbers in the winter. By-and-bye, what with the exhaustion of the border, and that from a few crops of flowers and fruit, if they set it, the plants are subdued sufficiently to flower abundantly every year from August to December. They may be saved from frost, against an open wall, by a thick dry covering; but the inside border of a greenhouse is the best place for them, and the tops to be taken outside in summer. Those we grow here are on a conservatory wall. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.



A Window.
B Doors.
C Fireplace.
D Recess.
E Place where the plants stood between A and B.

Room Plants.—A few weeks ago I endeavoured to show some of the reasons why several of our friends could not maintain their plants in a healthy condition in their rooms, and also hinted at the causes why such plants failed to give satisfaction when turned out of doors into the flower beds—insinuating that disappointments arose from want of *light* in the one case, and want of due preparation in the other. So difficult, however, is it for us to appropriate truths to ourselves until we have practically felt their importance, that week after week, both publicly and privately, similar questions are repeated by those who had the opportunity of reading and re-reading the previous answers. Among the many visitors this season, I have been chiefly delighted with two facts: first, that so far as I know not a single flower or fruit was interfered with, though on some Wednesdays there were upwards of three hundred visitors of all classes, down to the labourers' wives and some of their children, cleanly and neatly dressed; and, secondly, I was pleased to find that a love of flowers and gardening was approaching something like enthusiasm among our sweet young friends verging upon manhood and womanhood—giving evidence by their numberless questions, too abstruse and knotty at times for me to unravel, that the love of the beautiful, and the civilising heart-refining influence of flowers, would continue to progress in splendour and power when *we* shall have passed away and been forgotten.

I find it is no uncommon thing, both when at home and when they are at boarding-schools, for such young friends to have small gardens, and perhaps a window a-piece, where they can each show off and attend to their own favourite flowers; and as the season is now advancing, the preserving of these favourites during the winter formed a part of the many interesting questions submitted to me. Partly, therefore, to meet their case, as many of them read The Cottage Gardener, I give prominence this week to the inquiries of a correspondent as "to storing his few flowers for the winter," the accommodation he possesses being a turf pit like that recommended in "Paxton's Cottage Calendar," and a room, of which a plan is prefixed—the only window facing the north, and the recess, D, by the side of the fire-place being large enough to hold all his plants.

Now here, as we have no particulars given, our reply can only be general. Our correspondent complains that heretofore he has not succeeded, as generally the half of his plants die; but he does not tell us whether they die in the turf pit or in the room. Such a room, unless in the case of bulbs, must be looked upon as a hybernatory, and nothing more—that is, the plants must

merely be *kept*, not *grown*. I should also have been able to give better advice if I had known what "the flowers" are which are designed to be kept. For instance, if not too warm and dry, from being kept near the fire-place, deciduous plants, such as the *fuchsia*, might be kept in the recess during the winter; but the attempting to keep one of our choice pelargoniums there, in the darkest corner of a dark room, would ensure its safe destruction. Such a plant could only be made to live by placing it at A, close to the window, instead of at the side wall, E, merely keeping it healthy, but without growing much—giving, therefore, little water at the root, but rubbing the leaves frequently with a wetted sponge instead. Of course in cold weather, when the frost was severe, the plant instead of standing at A during the night, had better stand at E, or, better still, in the middle of the room.

In growing plants in a window, it is always best to have them set upon a narrow table there instead of the window-sill, as then the table and plants—or a stage, if thought better—may be moved at once. Confined solely to this room, with the window to the north, and therefore no direct sunlight, it would be advisable to set the plant out of doors, in a fine, dry, sunny day, for an hour or two, when the thermometer stands from 40° to 45°. At such a window you may safely preserve *scarlet geraniums*, *calceolarias* of the shrubby kind, and the hardier *verbenas*, if young plants, for bedding purposes; but you must turn the plants frequently, and keep them close to the glass, unless when it is frosty, and use water more for the purpose of refreshing and cleaning the foliage than for soaking the soil at the roots. With a window facing the south, the south-west, or the south-east, you might in addition to these things have had *Chinese* and other *primroses*, *hepaticas*, *epacrises*, *cytisuses*, *bulbs*, &c., in bloom. The plants must be got out of the north room as early in the spring as you can protect them from the cold, either by the side of a wall or in your turf pit, supposing you have no glass for it, for if you had, the plants would have been better there all the winter than in your room, provided you use the means for avoiding damp—such as raising the bottom above the surrounding soil, concreting it, and surface-concreting the outside to prevent damp penetrating, as was sufficiently adverted to last season. The recess by the side of the fire-place might also be useful for bulbs in pots—such as *crocuses*, *tulips*, *hyacinths*, &c.—as they would soon fill the pots or glasses with roots in such a situation, and might be placed at the window when the flower stems appeared, though even then they would do better with a better aspect, so as to catch at times a gleam of the sun's rays.

I should not have said so much of this recess did I not know that such little side-boards—common as the coverings of little cupboards by the side of parlour chimneys—after having served the purpose of showing off various fanciful and gimcrack articles during the summer, were appropriated during the winter as nice snug warm corners for preserving the plants that decorated the outside of the windows, and a little flower plot during the summer season.

A lady, the mistress of a neat little cottage, not more distinguished for her love of flowers than for her untiring activity and benevolence, lately pointed with great satisfaction to a couple of such recesses, upon which no direct ray of light could fall, as the intended abode of her beautiful *geraniums*, *fuchsias*, &c., during the winter; hoping that she would be more fortunate than last season, for with all her care she saved only a very few, and languid and miserable they looked. Alternations of heat and cold, the expansion of the tissues of the plants without the addition of anything solid to their substance, which addition can only be made in light, induced the languid dropsical appearance that at length ended in decay and dissolution. Fuchsias might have stood there until the fresh foliage was beginning to break, but then they must have as direct light as possible. Scarlet geraniums, whose stems were well ripened, might stand on such places until the fresh buds were breaking; and in very frosty nights good plants might be removed there from the window. Without this attention such plants as scarlet geraniums, with succulent stems, and such plants as fuchsias, with deciduous leaves, would keep better in the middle of an empty room well lighted, with a protecting material thrown over them in very frosty weather,—in an empty stall, in the byre or stable, where light was admitted, or even in a hayloft where there was a window near, as all that would be necessary would be the throwing a little hay over them in very severe weather. In neither of these places would light be required until fresh growth had commenced; and the superiority of such uncouth places to the recesses by the parlour fire would consist chiefly in the greater regularity of temperature and atmospheric moisture, by which, as it were, vital energy would be husbanded until called upon to act with vigour by the gradually increased temperature of spring.

In turf pits almost any window plants and bedding-out plants may be kept over the winter, if the pits are well formed and they are covered with glass. Oil paper frames, and even glazed calico frames, are of little use for such a purpose, as the damps of winter and the covering requisite in frosty weather, soon rot and destroy them. A turf pit is, for this purpose, better than a common brick pit, because if damp is thoroughly excluded, it is a good non-conductor of heat. The best method for protecting the glass would be by using board, asphalt, or straw covers. Where glass would be too great a luxury, boarded covers, tarred or painted, or asphalt felt covers, tarred every season, would enable a person, who knew what he was about, to save the most of these common window and bedding-out plants. Air could be given back and front, when the thermometer was above 35° or 40°, when it was too wet or stormy to remove them altogether. In fine days they could be lifted off entirely for several hours, and in cold dull weather they might be shut up for weeks without sustaining injury. Unless when rotten with damp, and this should be guarded against by having everything dry, or when several degrees of frost have penetrated, which should be avoided by coverings of litter, plants will sustain no harm when covered up in cold weather. I have had them shut up for seven or eight weeks, and by exposing them gradually to light and air they looked as well as the day they were shut up. Dryness in such cold pits, whether with glass or other coverings, is an essential element of success. For several months in winter the moisture in the atmosphere will pretty well supersede the use of the water-pail. Your object should be to husband and preserve the resources of the plants, not to develop them, until the bright suns and fanning breezes of spring arrive. Hence everything in the shape of warm dung linings must be avoided, as in warm weather they will ferment, and thus cause growth and moisture. I once lost a fine collection of cinerarias in a frame, where there was some heat below, and dung linings round the box; the plants rotted off when covered up in a severe frost. Had they been cool, and the frost merely excluded, they would have been safe. The superiority of glass over other covering arises from the ability to obtain light and air when otherwise both would be impossible.

Such pits, with a rail back and front and cross pieces for lights, or covers to rest upon, are likely to be favourites with many of our young friends. I once had a number of these pits myself, but having to be removed I obtained a long brick pit, with sashes, as compensation for them without sashes. I was reminded of them

the other day by some youths who had seen them when yet younger. One was sure such a thing would just suit them at home, and he could get plenty of turf from an old meadow. Another could not get turf, but he had plenty of old boards, and he would put them up feather-edge-wise, and then bank them round with earth two feet thick at bottom and one foot at top; height at back three feet, at front one foot, width of pit five feet; he would then put some gravel on the sloping bank, beat it firm, cover it with coal-tar, hot, by means of a brush, and quickly scatter over it sand, or sawdust. A third would make double walls, a foot wide, or at least nine inches wide between them, with old boards, and fill in the place within the double walls, or rather boards, with common earth, or, better still, with sawdust. And then they were to try different means of covering—old window lights, old tarpaulling covers, which they would mend and fresh tar, lumber window shutters, square pieces of zinc, and glazed calico; with each and every of such means they were to do such things as never were done before. Whatever others may think, I make it a point ever to encourage and never despise small beginnings; confident that every instance of even partial success will lead to renewed exertions, and that in these there will be a present pleasure as well as a future reward.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE BEST ON BLOCKS *(Continued from vol. 4, page 382).*

Leptotes bicolor (Two-coloured L.); Brazil.—Sepals and petals pure white; lip rose colour. A desirable, easily cultivated plant. 21s.

L. concolor (Self or One-coloured L.); Brazil. Not very different from the preceding, excepting it rarely grows so strong, and the lip has a much less spot of rose colour. 21s.

Culture.—Though these two small plants will grow in a pot, yet the habit of each is to droop; thus showing the way of cultivation they require, namely, either on blocks or in baskets. We prefer blocks, because the roots are more easily kept alive through the winter than either in baskets or pots. A little moss may be fastened to the block with advantage, especially during the growing season of spring and summer.

Odontoglossum Rossii (Ross's O.); Mexico.—Sepals greenish yellow, spotted with brown; petals white, with purple spots at the base. "The bright white lip lying, as it were, in the centre of a rich green, yellow and blue star of three points, produces a peculiarly beautiful and unusual appearance." This is a very interesting small plant, and is easy to cultivate. 31s. 6d.

O. Cervantesii (Cervante's O.); Mexico.—Sepals and petals white, barred with chocolate; lip white, with a blotch of pale yellow in the centre. 21s.

O. membranaceum (Veined O.); Guatimala.—Sepals, petals, and lip pure white, barred with pale brown; the floral leaves are very transparent, showing the veins very prominently; hence its name. 21s.

Culture.—These three Odontoglossums are really very pretty orchids, and deserve to be in every collection, and are worthy of every attention they require. They should be fastened to plain blocks; that is, blocks without bark, and they do not require any moss. The cooler house suits them best, as they come from the lofty mountains of Mexico and Guatimala. When they are growing, a gentle syringing night and morning will be necessary, with plenty of air during the day; but when in flower, the blocks had better be taken down and dipped in the tepid water in the cistern without wetting the flowers. As soon as the bloom is over, the syringing must be resumed till the pseudo bulbs are fully formed, when it must be withheld all the winter, in dull weather especially, and only resumed during sunny weather, just in sufficient quantity to prevent the bulbs from shrinking too much.

Oncidium Barkerii (Mr. Barker's O.); Mexico.—Sepals and petals rich brown, spotted with a darker colour. The lip is of a bright clear yellow, measuring an inch and a half across, produced on drooping stems a foot long. This is a truly splendid species (scarce). 42s.

O. bicolor (Two-coloured O.); South America.—This very rare plant is one of the most beautiful. Sepals and petals bright yellow, spotted with crimson; lip very large, white underneath, and of a clear bright yellow on the upper side. It is not purchaseable of florists.

O. bifolium (Two-leaved O.); Monte Video.—Sepals and petals small and brownish yellow; the lip is very large and of a clear rich yellow, rendering it a desirable species.

O. ciliatum (Fringed O.); Brazil.—Sepals and petals yellow blotched, with red; labellum yellow, with fringed plates. 21s.

O. concolor (One-coloured O.); Organ Mountains.—A singular plant even amongst the most singular. Sepals, petals, and labellum, are a clear pure yellow. Very rare. 84s.

O. crispum (curled O.); Organ Mountains.—Sepals and petals rich brownish yellow, or rather coppery colour; lip the same colour, with a lighter spot in the centre. The flowers are produced on upright flower-spikes numerously. They are large, measuring three inches across. The edges of the sepals and petals are curled, hence its name. It is a very beautiful species, but there are some varieties not so highly coloured, hence not so beautiful. 21s.

O. Forbesii (Mr. Forbes's O.); Organ Mountains.—This is a truly magnificent species. The sepals, petals, and labellum are, on their edges, pale yellow. They are broad, and the centre is of a clear scarlet, except the eye or throat, which is white, affording a contrast of colours that renders it exceedingly attractive and handsome. It is nearly allied to *O. crispum*, but is of a stronger habit, and the flowers are, from their contrast of colour and form, much handsomer. Unfortunately it is very scarce, and we think it a pity that collectors of orchids, in their eagerness after novelties, neglect good old species that are scarce in this country. We do not know of even one plant in any nursery in Britain, consequently we cannot put a value upon it.

O. iridifolium (Iris-leaved O.); Mexico.—Sepals and petals yellow, streaked with red; labellum of the same colour, and streaked similarly, but more intensely in the centre. 84s.

O. longifolium (Long-leaved O.); Mexico.—Sepals and petals yellow, blotched and spotted with brown; lip all yellow, except a few spots near the base. Flowers in large panicles. The leaves are round like a rush, but much thicker, and are sometimes three feet long, hanging down gracefully all round the block. 21s.

O. lunatum (Crescent-lipped O.); Demerara.—Sepals and petals of a bright orange yellow, spotted irregularly with dark brown; the lip is white, with a few pink spots. A pretty little species, but scarce. 84s.

O. pectorale (Stomacher O.); Brazil.—This choice species is very curious and handsome. The sepals and petals are bright yellow, thickly spotted, blotched, and barred with reddish brown. The lip has at its base a number of tubercles curiously arranged and studded with little button-like knobs. These give it the appearance of an old-fashioned lady's stomacher, hence its specific name. Very rare. 84s. T. Appleby.

(To be continued.)

FLORISTS' FLOWERS.

As the weather changes from dry and warm to wet and cold frequently and suddenly at this season, it warns us to be careful and attentive to the plants that are liable to suffer from such sudden variations of temperature. We must prepare the flannel for our own bodies to protect us from such transitions, and something equally as serviceable to shelter our lovely flowers from the same dangers.

AURICULAS and POLYANTHUSES must now, without further delay, be gathered into the place where they can be sheltered from excessive wet and severe frost. A brick pit with a glass roof is the best; and boards for shelves in the interior will be an advantage to keep the pots from the soil, and so prevent the worm from disarranging the soil in the pots.

CHRYSANTHEMUMS should now be showing blooms, and require a free and liberal supply of water, strongly impregnated now and then with liquid manure. Insects will abound, especially the green fly; and such as are out of doors, in the borders or against walls, should have the ends of each shoot dipped in tobacco water to kill them. In the greenhouse or pits these pests may be easily destroyed by filling the house or pit with tobacco smoke. T. APPLEBY.

THE KITCHEN-GARDEN.

CARROTS.—Those who have the convenience at this season of any spare lights and temporary turf-made or other pits or frames, with a little fermenting material, so as to command a genial bottom warmth, will do well to sow during the next two or three weeks the *Early Horn* variety, so as to ensure a good supply of early spring carrots; six or eight inches of light sandy earth should be placed close to the glass, and drills eight or nine inches apart be pressed into the soil with a triangular rod, which will leave room for a drill between each carrot drill for radishes. *Early Horn Carrots* of this season's growth, still left in the ground, would be better taken up; the late dry weather having pretty well finished their growth, they are now at rest, but the warmth of the soil and frequent showers will soon excite them into growth if left in the ground, causing them to produce a wig of fibrous roots, reducing the flavour, colour, and general quality of them, and inducing decay.

CAULIFLOWER PLANTS.—Those intended for early spring, and which are now up and growing, should have a due share of attention with regard to surface-stirring and early pricking-off. Some seasons, in close humid weather, the young plants, if very thick, are subject to destruction by mildew, but timely attention in dressing them with a little air-slacked lime, or dry wood-ashes, will clear them of this destructive pest. *Late sown cabbage plants* are also subject to the same attack, which may also be eradicated by the same simple means.

CHERVIL AND AMERICAN CRESS.—Make another sowing of both, and thin out finally that previously sown.

BROCOLIS.—Those now getting too luxuriant may either be taken up with good balls of earth to their roots and removed to sheltered quarters, and there be laid-in for winter protection, or they may lifted up carefully and laid down on the ground where they are standing. If, however, it can conveniently be laid together in snug sheltered borders or quarters, it is better to do so, as much ground is thereby saved, which may be left to have the old cucumber-beds or other manure wheeled on to it as convenience serves, for the ground to be well winter-trenched and ridged.

STORING.—Preparations should at once be made for storing *endive* and *lettuce* in pits, frames, or temporary erections, which should be attended to always whilst the plants are dry.

WHITE COS LETTUCE.—The present is the season for sowing this variety in shallow frames for standing until early spring. The best method we could ever find for producing a healthy, clear, and robust stock of plants is, to cast up a steep bank of tolerably dry, but healthy, lightish, and rather poor soil, facing the south as nearly as possible, then, according to the number of lights wanted to furnish the required quantity of plants, we have shallow boxes or frames, just four, nine, or ten-inch boards tacked together, with bearers nailed across for the lights to rest and slide on, and the inside filled up with soil, as above recommended, to the top. The seed sown, after one day's settling, will have an inch or so clear from the glass. The seed should be gently patted down with the back of the spade, and a little healthy sandy soil sifted over it. The lights should be placed on a tilt-up, for the purpose of giving air at once; a small quantity only at first, and so increasing it both at the back and front until in a very few days the lights may in fine weather be taken quite off, and never after be shut quite close, even at night, but let air be given freely both back and front all the time the weather is mild; at the same time the plants should never be allowed to get wet, as such tall young plants are very subject to canker and mildew, and will require attention to keep them clear and healthy. Surface stirring, with very small quarter or half-inch hoes, or pointed sticks, will also be found very serviceable for this purpose, as well as sifting amongst them occasionally and carefully some dry sandy loam and old mortar rubbish, which should always be stored for such purposes. Charred earth or charred dust of any kind are always famous materials, applied in this way, for keeping plants in health. Some of the late sown small plants of the hardier kinds of *Lettuce* may also be pricked in frames, and placed as recommended in the foregoing.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

By the Authoress of "My Flowers," &c.

How much beauty there is in hill scenery! Next to the sea—the boundless, terrible sea,—hills are the objects of greatest grandeur and sublimity, whether they rise sternly before us in bold and rugged majesty, or swell into quiet undulations of a calm and peaceful kind. The eye as well as the mind is always pleased with resting on a range of hills; and how uninteresting is the richest county if it is not diversified by hills, or knolls, or rising grounds! There is one among many spots near my home, where I particularly like to stand. It overlooks a narrow vale, on the other side of which stretch the tranquil Hampshire hills, so boldly and yet softly swelling, that they form a beautiful feature from every point of view. Just before me are a group of cottages covered with creepers, and surrounded by neat gardens; but they lie low and among trees, so that little more can be seen of them than the roofs, and the fruit-trees that surround them; but their snug, sheltered position, and the curling smoke that ascends from them, gives a pleasing English air to the view. Beyond them a large, substantial, comfortable farm stands upon a brow; to the right is soft woodland

scenery, among which is concealed from sight a little church, a sweet secluded parsonage, and a rambling hamlet, full of picturesque snatches, and cottages, in every one of which one cannot help wishing to live; while a distant line of trees which form the horizon mark the farm where Jethro Tull once lived. On the left hand, plantations of dingy Scotch fir now shut in the view, and exclude much beauty which, many years ago, added considerably to the scene; but the contrast is striking, and in the winter it heightens the effect. From this lovely home-view the eye ranges over the cool grassy hills that stretch along the valley, so high, and yet so quiet in their character, that the mind feels repose in gazing upon them. Their summit is still encircled by the very perfect remains of a Roman encampment, which arouses a long train of thought. On that calm and peaceful height was once heard the clang of trumpets and the noise of an armed multitude. Rapine and cruelty and death followed in their train, and the very fields and woods and gardens that now decorate this valley, were once trodden by the terrible legions of a warlike and despotic empire. How fearfully must the trembling occupiers of this very spot have looked up to the strong and threatening fortress that frowned from the hill, full of desperate and lawless men! and how ought we—how ought the *cottage gardeners* of Old England to bless God that the deep green dykes around their hills, and the crumbling walls of the old castles that beautify her scenery, are all that remain of those dark disastrous days when her sons groaned beneath their burdens, and her "children fell under the wood!" How ought we all to prize and pray for the peace and prosperity of our dear old island, the Monarch that sways the gentle sceptre, and the freedom that our laws enforce and guard! But let us remember *why* England is free, and happy, and prosperous; *why* the throne stands so firmly; *why* her shores are *as yet* preserved from the foot of the destroyer. Because England *protests* against "the mystery of iniquity,"—against him "who opposeth and exalteth himself above all that is called God, or that is worshipped; because she acknowledges Him "whose name is above every other name," in all she says and enacts; and because her Monarch fills the throne *only* "by the grace of God." For these reasons, and for these reasons only, England is what she is. Whenever, as a nation, she gives "heed to seducing spirits and doctrines of devils," the cup of God's wrath will quickly be placed in her hand.

Mountains and hills have been largely used in Scripture, to convey instruction to our hearts, and comfort and confidence. How many glorious and mighty works are brought to our minds when we gaze upon, or even think of them—Ararat, Sinai, Pisgah, Horeb, Carmel, Zion, Calvary! What speech and language there is in each and all!—how they glorify Him before whom "the everlasting mountains were scattered, the perpetual hills did bow!" How they warn us to secure a sure interest in His covenant before our "feet stumble on the dark mountains," before we "begin to say to the mountains, fall on us, and to the hills, cover us." Let us, as we stand admiring the beauty of our varied British scenery, think of these things, for they are of deep and fearful importance; and let us "look to the hills from whence cometh our help,"—our only help when "earth and heaven" shall flee away.

And now, once more, the bright beautiful tints of autumn are tipping the trees. The limes are speckled with gold; the beeches are tinged with their first rich colouring; and among the copses the birch has clothed itself in yellow, and its delicate leaves are already strewing the ground.

Yet, the early morning is full of exquisite beauty: the bright sun-beams slant through the trees with rich golden light; and the dew lies so thickly upon the grass, that it looks like molten silver. The last few mornings have opened with a thick wet fog, which in spite of its chilliness adds to the loveliness of the scene; for as the sun rises higher and higher, the feathery clumps of trees emerge gradually from the vapour, and every instant a new and beautiful object is brought out softly and gracefully to view. When I first open my window I see numberless little plump thrushes hopping fearlessly upon the lawn, knowing well that man is not yet gone forth to his labour; and the graceful roguish squirrels dart like lightning from the filbert-trees, where they have been robbing our future store.

There is so much deep sentiment in the closing year, and it speaks so loudly to poor short-lived man, that we can never mark its earliest approaches without interest and solemn thought; at least, as the winter of our life comes on. To the young, indeed, every season comes blithly and cheerily, for all is bright to those who are just springing into life, and have not felt the sweep of the tempest, and the blighting winter frost. To use an expressive Scotch phrase, "the black ox has not tramped" upon them yet; and they feel just as a gay spirit spoke a few days ago, "Oh! the tints of autumn are so beautiful, I never think of winter!" Yet, as years multiply, we *do* think of winter, and many things and persons, and sorrows too. How many eyes that kindly glanced over the pages of "The Cottage Gardener," when first it saw the light two years ago, have already closed in death! How few of us are permitted, in this unstable world, to witness the falling of the leaves without a lament for objects, dearer far, that have dropped around us!

And yet, how many of us have to praise the Lord for added mercies—mercies without end! Trials and afflictions are mercies, although clothed in unlovely garb; but the love of our Father sends us showers of blessings, and adorns our path with a thousand beautiful things. Oh! let us bless Him for the continuance of the frail breath that only separates us from the land of spirits; for, perchance, some of us have an account to give that needs a strict examination before it is rendered up. Let us remember that every leaf that falls hung by a stronger thread than that which supports our lives, and that, however we may "rejoice in the days of our youth," "yet for all these things God will bring us to judgment."

Let our walks lead our minds to high and solemn thoughts. They will not embitter, but sweeten our leisure hours; they will add abundantly to our enjoyments now, and prepare us for those better things that are eternal.

THE CLAY MARL OF SUFFOLK AND NORFOLK.

The subsoil of a great part, indeed of the greater part, of the counties of Norfolk and Suffolk consists of a substance provincially called "clay." I use the word "provincially," because this substance is very different from that which is commonly called clay, viz.; the earth of which bricks and pottery are made. The clay of Norfolk and Suffolk is composed of calcareous and argillaceous earth, and I believe that most specimens contain more or less sand. It varies as to colour, consistence, and composition. The preparations of calcareous and argillaceous earth are variable; in some localities it is very stiff; in others very friable; in some it even contains so great a quantity of soft sand, that when dry it invariably falls to powder, when pressed between the finger and thumb. The colour of the upper part of the stratum is usually whitish or gray, but sometimes blue, and sometimes yellow. The yellow is, I suppose, coloured by carbonate of iron; the blue by carbon, since it turns white in the fire. I believe that at the depth of ten or fifteen feet the colour is invariably a blue, either lighter or darker. This clay seems to be the result of the destruction of a part of the chalk stratum and of some argillaceous stratum; the two earths appear to have been suspended in water, and as they subsided to have been mixed together. It is quite plain that one of the component parts is derived from the chalk; for, besides the calcareous earth which is intimately blended with the argillaceous, the clay, in most instances, contains numerous nodules of chalk, a few of which may be six or eight inches in diameter, but the greater part are much smaller, varying from the size of a small bean to that of a pin's head; many specimens are full of those small pieces of chalk. Moreover, chalk flints are irregularly dispersed in considerable numbers throughout the mass of the clay, at least through the upper part of the stratum, and in that part the larger nodules of chalk are most abundant, but smaller nodules are found, and often in great numbers, in the lower part of the stratum, which consists of blue clay, and which in sinking wells has been penetrated to the depth of seventy feet, and perhaps to a greater depth. Large pieces of septaria* containing carbonate of lime in a chrystalised state also occurs, but not very abundantly. A fine fragment of rocks, whose geological position is below the chalk, are sometimes, but not very frequently,

* *Septaria*, irony marl from which Parker's Cement is made.

found imbedded in the clay. The earths which constitute the clay have plainly undergone the action of water, for the nodules of *chalk* show evident signs of attrition, some of them appear in the form of pebbles; but this action seems to have been neither sufficiently violent nor long-continued to produce any great change in the flints; they have much the same appearance as those which are dug out of chalk-pits; they still retain a part, and sometimes apparently the whole, of their white coating, and their cavities are often filled with pieces of chalk.

I have described this clay, because in this district it is very beneficially and almost universally employed as a manure. Sixty or seventy loads per acre are usually laid upon heath, or common, or pasture land, when first broken-up. It is considered as indispensable to the cultivation of land when first brought under the plough, whether the soil be light or heavy. I am informed that upon light land a hundred loads per acre are sometimes used. When the land has been for some time in cultivation as arable land, it will want claying once in about twenty years; but then the quantity required is not more than forty, or, at most, fifty loads per acre. The clay is procured by sinking not shafts but open pits, whence it is drawn in carts by horses, but it is sometimes wheeled out by men in barrows. Pits are seldom opened to the depth of more than about fifteen feet, because the clay which lies near the surface is preferable to that which is found at considerable depths; since the former contains a greater proportion of calcareous earth than the latter. I suppose it is only the calcareous part of the clay that fertilizes heavy lands, though the argillaceous part has, undoubtedly, a beneficial effect upon sandy or peaty soils, by supplying an ingredient which in such soils is almost entirely wanting; but strong clay—that is, clay containing a large proportion of argillaceous earth is seldom found under sandy soils; a great deal of sand is usually mixed with it, and it sometimes passes into a kind of marl, provincially called "murgin," which seems to consist entirely of pulverised chalk, not unlike whiting; and, indeed, it is used by the poorer people for whitewashing the walls and ceilings of their houses. The quality of the surface soil is evidently determined by the quality of the subsoil.

When the clay has been drawn from the pits it is laid in heaps, and then spread upon the land. This should be done between the end of harvest and the beginning of winter, that the clay may be crumbled by the frost, and so be in a fit state for ploughing-in in the spring.

I have spoken of the use of clay in agriculture, but I believe that every one who has tried it can bear witness from experience that it is not less beneficial to the garden than to the farm. I am sure I can for one. The soil of my garden is a mixed soil—that is, neither light nor strong; it is rather gravelly, but not poor; and it has been very much improved by being clayed. But gardens, the soil of which is naturally very poor and sandy, are made, by the application of clay, to bear luxuriant crops of almost every description of garden produce. I, of course, suppose that, in addition to the clay, a proper quantity of stable-yard manure is made use of.

But I think I hear some of your readers say, "why do you encumber your pages with a notice upon the clay of Norfolk and Suffolk, when those who live in other districts cannot procure it, and every gardener and farmer, and every labourer in those counties is perfectly acquainted with the use of it, and wants no information upon the subject that your correspondent can give them?" I answer, though that particular description of earth is, I believe, peculiar to the eastern counties, yet other earths, which would be quite as useful as a manure, may undoubtedly be found in many other parts of the country. It is true that the geological position of the clay which has been here described is above the chalk, but a kind of clay, or, to speak more properly, of marl, is very frequently, perhaps very generally, found extending over a considerable breadth of country at the foot of the chalk ranges, plainly washed down, in the course of a long series of ages, from the adjacent hills. This marl would, I suppose, be as valuable a manure as the clay of the eastern counties, perhaps more valuable for most kinds of land, because it contains a greater proportion of calcareous earth. And I think it not improbable that earth, which might be used for the same purpose, may be found in the form of marl or of calcareous gravel or sand, at the foot of hills composed of limestone much harder than chalk. In Kent pure chalk is very commonly used as a manure.

In short, the whole of this lengthy notice might, perhaps, be comprised in these few words:—Most soils will be improved by the application of calcareous earth, or any kind of limestone that will yield to the action of the frost and of the air; and those soils which are sandy or peaty, or which contain much inert vegetable matter, will be improved by the application of a mixture of calcareous and argillaceous earth.

REV. E. SIMONS.

DOMESTIC MECHANISM.

BOX CHURN.—This simple and ingenious contrivance is the invention of an eminent mechanic. Get a deal box of dimensions according to fancy—longer than broad; the joints must be perfectly water-tight, and the lid must fit very close. At the upper sides, exactly in the centre, fasten firmly two iron bolts with holes smoothly bored at their upper parts. The diameter of these should be about an inch. Erect two uprights, the distance between which should be a little more than the breadth of the box; the height of these three and a half or four feet. At the upper part, stretch a smoothly turned bar, of a diameter a little less than that of the holes in the bolts of the box. Before finally fastening the two upright supports together, pass the bar through the holes of the bolts, thus suspending the box between them. The box may be easily made to swing backwards and forwards on the bar, the centre of its motion being above the box. At the ends of the box in the interior, fasten angular pieces of wood, stretching across the box; let these be rounded, as shown in the cut, in their inner side. Supposing the machine to be properly fastened and hung, fill the box with milk, and put on the close-fitting lid. To churn and agitate the fluid, all that is necessary is to move the box lengthways back and forwards. The pieces of rounded wood at the ends will throw back the milk at each swing, causing great commotion. The machine may be simply worked by levers. If necessary, in a future number we will give a sketch of a simple method. A farmer, who has used this simple contrivance, used to affirm that he could sit and read his newspaper and churn many a pound of butter.

TABLE COOKING STEW PAN.—The simple and effective contrivance shown in the annexed wood cut, has been used in many families not only with economy as regards time and money, but also on account of its cooking small dishes so delightfully. We have heard it get several names; of these we like the "conjurer" best. We have ate many a pound of good steak cooked by it, and invariably found it improved "most magically." From the speedy nature of the operation and the closeness and lightness of the pan, meat, however tough, is rendered "beautifully tender." We have no doubt that many of our readers have seen it; others, we dare say more numerous, have not. For the benefit of these we give the sketch. A description is almost unnecessary. It consists of a circular pan some six or seven inches diameter, and three or four deep, provided with a tripod stand and a shelf beneath it. On this shelf is placed a small open dish, some one and a half or two inches diameter, containing spirits of wine (or good whisky does famously). The meat, with its "garnishing," is put into the pan, and covered in with a very close-fitting lid. The spirits of wine are lighted and placed on the shelf beneath. You may place the whole apparatus on the table before you; you will not have to wait long for your meal. On taking off the lid, "the grateful odour" arising will greet your nostrils, and readily convince you that the apparatus is indeed a conjurer.

B.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

Pansies (*J. H. K.*).—Your four pansies are all of good form and substance; and, as far as we could judge from the flattened, injured specimens, Nos. 1 and 4, are the most novel in colouring.

Taylor's Bee-box (*A Newly-Married Yeoman*).—The top of this *is* made in all respects as was directed in the appendix of the third edition of his *Bee-Keeper's Manual*. The brass-headed nails used are the same as those employed by upholsterers about old-fashioned hair-bottomed chairs.

Salting Asparagus Beds (*Rev. E. S.*).—Salt is best applied in the spring and summer whilst the plants are growing. We usually apply it three times, about March, May, and July. You may sprinkle it over the surface so as to make this perceptibly white; eight pounds to each thirty square yards is not too much. We shall be glad of a description of the mode clay is employed for building.

White Scale (*L. C.*).—This insect on the stems and leaves of the Acacias and Oleanders in your greenhouse is the *Aspidiotus Nerii*, or Oleander Scale. The best remedy is to dip the plants into water heated to 114°, keeping them under water for two or three minutes. This repeated once or twice, if necessary, at intervals of two days, will remove the pest. To keep them away, let the air of your greenhouse be more moist. Keep a strict look out for their reappearance, and dip a plant as soon as one is observed upon it, for they are difficult to exterminate and increase rapidly.

Rampion (*C. B. C.*).—This is the *Campanula rapunculus* of botanists, and it thrives best in a light, yet moist shady border. We agree with you in thinking it "worthy of a place in every kitchen garden," but it will not thrive with you if your soil is dry or clayey. The roots are good boiled whilst young and served up like asparagus. Sow three times—in March, April, and May, in drills eight inches apart. Dig the soil for them two spades deep, and turn in a little well-decayed stable manure with the bottom spit. Thin the plants to eight inches apart. Give frequent and plentiful waterings throughout the growth of the plants, or their roots will be dry and woody.

Names of Insects (*J. L.*).—The grub you complain of as "most destructive to all young plants, biting their stems in two just beneath the surface," is the larva of some moth, probably the Brown Heart-and-Club (*Agrotis segetum*). Unfortunately they cannot be discovered except by their ravages. (*Eliza, Richmond Bank*).—Your children are right in thinking that it gives us pleasure "to tell them all about the insects" they caught. The moth (not butterfly) is a male of the Vapourer (*Orgyia antiqua*); the peculiarly hairy and tufted caterpillar of which is fully described at page 316 of our second volume. The female is a downy ash-coloured insect, without wings. The beautiful fly you sent us, and which seems a fitting inhabitant of fairy land, is the Golden-eyed lace-winged Fly (*Hemerobius perla* of Linnæus, and *Chrysopa perla* of modern entomologists). It is really gratifying to know that such a beautiful creature is the friend of man, for its larva feeds on Plant Lice.

Soap-suds (*T. P. L.*).—It is much too comprehensive a question when you ask, "will it hurt flowers to water them with soap-suds now and then?" What flowers do you mean? Geraniums, fuchsias, and such hardy plants, when growing, are benefited by soap-suds applied once or twice a week.

Ants Invading a Hive (*A Beginner*).—To prevent this, paint a broad band of coal-tar round the leg or legs of your bee stand, and repaint it when the tar becomes dry, which will not be for a long time.

Cabbages Club-rooted (*J. A. B.*).—We think that your plants must have been pierced by the insect which causes the club-root, or ambury, before they were planted. If a cabbage or brocoli plant has a knob near the roots, this should be removed before replanting, because in that knob is either the egg or the grub which causes all the mischief. Make your ground as rich as you can before planting your cabbage-worts in future; and as you cannot get ammoniacal liquor, give the ground a dressing of soot and salt just before digging it.

Peat (*A. B. C.*).—You ask us to give you "some idea of the nature of peat;" and we will endeavour to do so; but any description will be less effectual than your asking any florist in your neighbourhood to show you some, for each and all florists have it for potting purposes. The best peat is a mass of vegetable fibres, mostly black, mixed with sharp white sand. The fibres are chiefly the dead roots of heath. The best peat for gardening purposes is found just below the surface, on Bagshot Heath, Delamere Forest, and elsewhere; and a specimen of this has been found to contain—fine siliceous sand, 156 parts; vegetable fibres and decomposing vegetable matter, 114; coarse silica (flint), 102; alumina (clay), 16; oxide of iron, 4; soluble vegetable and saline matter, partly muriate of lime, 8.

Verbenas (*Ibid*).—Twelve good varieties which will do well for you to exhibit are—Wonder of *Scarlets*; Mountain of Snow, *white*; Speciosissima, *red*; Mrs. Mills, *blue*; Gladiator, *orange scarlet*; Excelsa, *pink*; Apollon, *violet purple*; Beauty Supreme, *carmine*; Ramona, *maroon crimson*; Haidee, *lavender*; Rubens, *rosy crimson*; and Woodsii, *dark maroon*.

Worms (*P. M. H.*).—Worms benefit a soil by piercing and loosening the texture. Your subsoil cannot be "sandy *or* clayey"—they are totally opposite. We must have a more accurate description of both the soil and subsoil before we can venture to recommend any manures to mix with them.

Heavy Soil (*Eyre, Brixton Hill*).—Have it drained with one-inch drain pipes—the drains twelve feet apart, and two feet and a half deep. It is quite impossible to be more specific unless we knew the place.

Disease in Chickens (*W. Barnard*).—Your chickens with swollen crops, drooping wings, and disordered bowels, are attacked with the *Cheep*, or *Chip*. The name is applied to the disease on account of the peculiar note they utter whilst suffering from it. It arises from exposure to cold and damp. Confine them until they are a month old to a dry, warm place; feed them on groats, with occasionally an egg boiled hard, with a little onion chopped up with it, and you will probably avoid the loss of which you complain. If you take *The Cottage Gardeners' Dictionary* until completed you will find all the practical directions you covet.

New Garden (*Popplewell*).—The only things you can plant *now* are *cabbages*. In November you may plant *potatoes* and *broad beans*. Put in some cabbages on the ground out of which you are taking potatoes. The trainer you mention will suit the *Tropæolum tricolorum*; but it is too much to ask us to incur the expense of having a drawing engraved for you.

Names of Plants (*Clericus, Beds*).—Your annual is *Eutoca viscida*. (*C. G. R.*).—The small leaf is of *Melia Azederach*, but the other we cannot recognise. Let us have a flower if it blooms, and we shall be able to assist you. (*T. P. L.*).—Your miserable specimen seems to be a piece of *Aubrietia deltoidea*—a useful rock plant. *Calystegia pubescens* can be obtained of any respectable florist. Bulbs of *crocuses* and *snowdrops* may be put in now.

Cyclamen Persicum (*T. T. G.*).—These which have been plunged in your border all the summer repot immediately, but disturb the roots as little as possible. Merely rub off gently a little of the old soil, and return them into the same pots, adding a little fresh soil to replace what has been removed.

Mulberries Preserving (*S. S. J.*).—These may be made into jam the same as any other fruit, and the preserve is delicious. Allow rather more than half a pound of loaf sugar to every pound of mulberries. Let the fruit boil up slowly and gradually, then add the sugar, and boil for three quarters of an hour longer, stirring it the whole time. Mulberry syrup, for this fruit is too juicy to make into jelly, is very good, allowing the same quantity of sugar to every pint of juice. We have tasted some that was made into syrup last year, and added this, to some fresh black currant jelly, in the proportions of one-third mulberry, to two of currant, and the mixture is firm and excellent. We have never seen mulberries bottled, nor preserved whole in any way.

Bee-keeping (*J. E. W.*).—Your being absent from home from eight until six, is no insuperable objection to your becoming a bee-keeper, if you have any one to watch the hives during the swarming season, and who can hive a swarm if it comes forth.

Night-soil Fumes (*W.*).—You can mitigate these by sprinkling a little powdered Gypsum over the soil every evening, and doing the same with a little Chloride of Lime every morning.

Fuchsia Brockmannii (*L. A. C.*).—As you have no greenhouse, leave this in the border all the winter, covering over its roots all round to the distance of a foot from the stem, and up its stem a foot deep with coal ashes.

Calico Covering for Frames (*Ibid*).—For fifty square feet of calico, one pint and a half of pale boiled linseed oil, half an ounce of sugar of lead, and two ounces of white resin, are required. Grind the sugar of lead in a little of the oil, before adding the remainder and the resin; mix them together, and simmer them gently in a large iron pot over a gentle fire. Apply the mixture to the calico with a large brush whilst hot. The calico should be damped before being tacked on to the frame, and when again quite dry the mixture applied as above directed. Plant out your *Hollyhock seedlings* at once where you wish them to remain. For *Calceolaria* seedlings, you will find very full directions at page 63 of our third volume.

Ammoniacal Liquor (*H. G. L.*).—Where did we ever recommend this "in its concentrated state," to be applied to *Strawberries?* No wonder it has killed yours. We recommended it in its concentrated state to be applied to vacant ground *before* it is dug for cabbage planting. It is then turned down into the soil, kills surface vermin, and comes gradually to the roots. For watering between the rows of cabbages, when they are rooted and growing freely, but not before, ammoniacal liquor in the proportion of one gallon to five gallons of water, may be used with great benefit. Do not even then pour it into the holes round the stems of the plants, but into a trench drawn between the rows.

Seeds of Annuals (*E. S. P.*).—Apply to any of the seedsmen or florists who advertise in our columns; we cannot recommend any particularly.

China-asters (*G. H. P.*).—They are only reared from seeds sown in

the spring like most of our annuals; but next week you shall see all about them.

REPOTTING GERANIUMS (*F. H.*).—As your geraniums will not be ready for potting till the first week in October, you had better not put them in their flowering pots till the beginning of February, and the interval will no more than compensate for "Aunt Harriett's" six weeks of autumn weather. At all events do not put them into large pots in October, unless you are a first-rate grower of them.

ROSES (*Ibid*).—The directions given to cure a dreadful malady on the vine, were altogether inapplicable for your roses. You washed all the salt down to the roots, and probably killed or injured them too much. We cannot too often repeat that salts are as dangerous in the hands of some people as gunpowder. How would you like to fire off a cannon without any one near you, or fire a train for a blast in a quarry. Easy processes to those who understand them, but otherwise as dangerous as salts?

HABROTHAMNUS FASCICULATUS (*J. French*).—The plant you allude to is protected by Mr. Beaton in winter by a moveable covering of glass, and the wall is heated by hot-water pipes passing along the middle of it at the ground line, the centre of the wall being in open cells. You had better take up your plant of Habrothamnus this winter, as you propose, and do not thrust it to thatching until the shoots are old enough to look as dry as walking sticks, then with dry thatch it is easy enough to keep them out all the winter.

PYRUS JAPONICA (*Ibid*).—This is not a pear but a quince, and is properly *Cydonia Japonica*. It is propagated by layers made in the spring, and by cuttings of the roots, from four to six inches long.

REMOVING BULBS (*Scrutator*).—Without knowing more of your stock than that it consists of "bulbs," it is not in our power to tell you whether the plants can be removed next March or not. Hundreds of bulbs can be removed in March, but many more could not then be disturbed without putting them back from flowering; some for one season, and some for two seasons, and a few for five years at least; but all bulbs, save a few Irids, may be removed at any time, without endangering the life of the bulbs itself, if the work is done properly—that is, not to pull them up, but to take all their roots with them if possible, and those that are in growth should be laid at full length in a basket on damp moss, and covered with the same if they can be replanted the same week, if not, the leaves must not be longer kept in the dark, but the bulbs and roots must be kept dark and moist, and also the leaves supplied with water. *Dahlias* are not bulbs but tubers. Take them up and store them as directed at page 409 of last number.

TOM THUMB AND FANCY GERANIUM SEEDLINGS (*A Constant Reader*).—The latter should be kept growing slowly; they will not stand the starving system much. The first may also be grown if you have convenience, as Scarlet Geraniums are very bending, submitting to almost any treatment, in reason. If your plant was large, grow it little until spring. If small, the warmest place in the greenhouse, or an airy spot even in the stove or forcing-house, would suit it. See an article on preserving plants during the winter.

FUCHSIAS (*Ibid*).—These in a greenhouse during winter should not be kept *dry*, but if placed beneath the stage they will require much less water than when placed upon it, and they are no ornament there until they have broken into fresh leaf.

YUCCAS (*Ibid*).—These, showing their large roots above the tops of the pots, may either be repotted now, or as the autumn is getting on, in the spring of the year. The large roots should not be broken, as you will injure the plants.

ARAUCARIA EXCELSA AND CUNNINGHAMII (*Ibid*).—These are too tender to bear our winter in common circumstances, whether standing in pots or planted in the ground.

CEPHALOTUS, OR PITCHER PLANT (*W. B.*).—Though there is something of a pitcher-like appearance among the leaves, yet this pretty little curious plant is not usually designated the Pitcher plant. It flourishes best in boggy soil, or in a mixture of peat and chopped sphagnum, kept well supplied with water, placed in the lightest and warmest end of the greenhouse, and a bell-glass placed over it. Though thus frequently kept in the greenhouse, it likes a cool stove best in winter. In propagating it from divisions, a similar method must be adopted, with the difference of giving it a higher temperature, to encourage it to root freely. What is properly termed the Pitcher plant, *Nepanthes distillatoria*, requires the warmest and moistest part of a plant stove. If first potted in a suitable sized pot, in a mixture of peat earth and sphagnum moss, well drained, and then this pot packed in a stout basket or open box of moss, so as to retain moisture, and this basket be fixed over a cistern or an evaporating pan, through which a hot-water pipe passes, then the plant would be placed in a situation to enjoy itself.

ROSES (*A Subscriber*).—Your enquiries will be answered fully soon.

BULBS (*S. H. R.*).—The sooner you pot these intended for blooming in the greenhouse the better. Use rich light soil, a little rotten dung, leaf-mould, sand, and what you have discarded at times from the pot plants, and accumulates beneath most potting benches, will answer well. Do not place your bulbs deep, nor yet press the soil much. Three *Van Thol tulips* may be put in a six-inch pot, and one of the large *narcissus*. For an early display we generally prefer four-inch pots for single bulbs of *hyacinths*. When all potted, set them down on a piece of ground, made firm, and having a layer of ashes and a little salt, to prevent worms getting up, and then cover them all over several inches thick with the ashes, or old tan, or even with earth or leaves. To keep away mice, it is advisable to cut a quantity of prickly furze and strew over the pots, before covering them. When full of roots, and the tops pushing, you may place some of the forwardest in a hotbed, to bring them into bloom about the new year, and others will follow in succession. When done flowering, you must encourage the foliage as long as possible, if you expect them to be useful in the future; but you must not expect to pot them until a second season. See Mr. Beaton's method of planting them out.

GLADIOLUS (*Ibid*).—This, still green, we should allow to remain as long as the weather is mild, or even until it received a little frost. As you know not what it is, we would advise you to take part of it up then, and lay it in pans in the greenhouse until the stems withered; and the other part cover up with leaves, and let them take their chance in the open ground.

PASTING-DOWN PRESERVES.—*Mr. Aloes* informs us it is done as follows:—Cut a piece of stout writing paper (foolscap) about an inch larger than the mouth of the jar to be covered; paste one side all over with a small brush; then stretch the paper over the jar's mouth, with the pasted side next the preserve, and while the latter is hot, smoothing the edges down closely, and then the work is done. The preserve being, at least, a quarter of an inch from the top of the jar, the paper will not touch it, and the comparative absence of air from that space, I think, is the grand secret of success.

DISSOLVING INDIAN RUBBER (*H. G.*).—Naptha dissolves Indian rubber, but it requires to be heated, and the heat applied for some time. Oil of turpentine also dissolves it under the same circumstances. Both are used in preparing Mackintosh's and other waterproof fabrics.

DESTROYING NETTLES (*Urtica*).—If you pour the diluted sulphuric acid over this it will be killed. Your only mode of destroying the nettles in your grass field, is to pare off the turf where they are, to fork out their roots, water the place with sulphuric acid, diluted at the rate of one pound to a gallon of water, and then to return the turf; watching for the reappearance of any nettle in the spring, and then to take off the turf and fork that nettle out also.

OUR CALENDARS (*J. R. Wood*).—These are calculated for all parts of England, because there are very few operations in gardening that will not succeed if done a week earlier or a week later even in the medium latitude for which those calendars are prepared. Those of our readers who live far north, may be safest by performing any operation directed a little in advance of the time specified, but if a week later they need not despair of success.

DIBBLE (*W. X. W.*).—If you require a dibble that delivers the seed, we know of none so good as Dr. Newington's.

WILD FLOWERS (*J. P.*).—Hooker's *British Flora*, with coloured plates, comes nearest to your wishes. The price is a guinea.

POTATOES NOT DISEASED UNDER AN ASH (*Ibid*).—We know of no virtue in the ash to keep away the murrain, though we believe our forefathers thought driving cattle with an ashen goad kept them from being bewitched. Potatoes under the shade of trees usually are much diseased, because such situations are most wet and shaded. The ash-roots running near the surface are well known to keep it poor and dry; these circumstances may account for the fact you mention; because wetness and richness in the soil are the greatest promoters of the disease.

SOLFATARE ROSE (*Rev. E. C. H.*).—We know your parish in Worcestershire perfectly well, and we can say from our own experience in that quarter that the Solfatare rose, if you have the true one (a hybrid of the Tea-scented), shall not flower with you as a standard two seasons out of ten; besides, if the stock is very good, you ought to let the shoots grow at least twenty feet in three years; in other words, this rose is not suited for standards at all in England. It is a first-rate sort in Paris, but with us only a third rate. We keep it under glass in winter, and a south aspected wall all the year round. It flowers with us in May and in October, but after all it is not worth much in colour or form. Very pale buff and as ragged as a colt.

PYRUS JAPONICA FRUIT (*Ibid*).—This is now called *Cydonia japonica*, being a quince; a recipe for preserving the fruit is given at page 288 of our second volume.

GLADIOLUS PLANTING (*Minnie*).—There are gladioli that must be planted now, and others not till the spring. Consult the indexes for their names, &c. &c. Those you plant now may have any of the low annuals transplanted amongst them as soon as the gladioli tops are above ground; *Nemophila insignis* for instance; but we dislike altogether to recommend particular plants for particular beds. The best friends in the world disagree on such topics, and we very much dislike to disagree with any one if we can help it. The Guernsey people would not send you spring gladioli, with directions to plant them now.

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WEEKLY CALENDAR.

W D	OCTOBER 10—16, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Th	Oxford and Cambridge Terms begin.	29.677—29.692	56—31	N.E.	—	17 a. 6	17 a. 5	8 23	5	12 54	283
F	Old Michaelmas Day.	29.526—29.475	54—42	N.E.	—	19	15	9 5	6	13 9	284
S	Birch leaves fall.	29.614—29.513	53—39	N.E.	0.02	20	13	9 55	7	13 24	285
Sun	20 S. aft. Trin. Trans. Kg. Ed. Con-	29.869—29.790	48—38	N.E.	0.06	22	11	10 50	●	13 39	286
M	Swallow last seen. [fessor.	30.074—29.978	51—39	N.E.	—	24	9	11 49	9	13 53	287
Tu	Beech leaves fall.	30.074—30.055	50—34	N.E.	—	25	6	morn.	10	14 6	288
W	Martin last seen.	30.057—29.981	55—37	E.	0.05	27	4	0 51	11	14 19	289

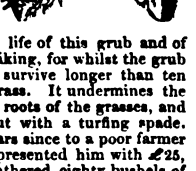
THE 19th of October is the anniversary of the birth and death of SIR THOMAS BROWNE, those boundaries of his life occurring in the years 05 and 1682. The chief part of his life was passed at Norwich, the ace where floriculture first maintained pre-eminent attention in this intry, and where, in 1637, the first florists' feast was celebrated ring his residence there. He participated in the prevailing taste, and, as atever he thought worth undertaking he justly considered should be ne well, his gardens were finished according to the best taste of the e, and Evelyn speaks of them as "a paradise of rarities." Evelyn ited the gardens in 1671, and thus records the occasion of his going:— Oct 17. My Lord Henry Howard coming this night to visit my Lord amberlain, and staying a day, would needs have me go with him to rwich, promising to convey me back after a day or two; this, as I uld not refuse, I was not hard to be persuaded to, having a desire to that famous scholar and physician, Dr. T. Browne, author of the *ligio Medici*, and *Vulgar Errors*, &c., now lately knighted. Hither, n, went my Lord and I alone, in his flying chariot with six horses. xt morning I went to see Sir T. Browne (with whom I had some time responded by letter, though I had never seen him before). His whole se and garden being a paradise and cabinet of rarities, and that of best collection, especially medals, books, plants, and natural things." whatever subject Sir T. Browne turned his attention, around that ject he usually gathered pleasing information, and gardening was not exception. In 1658 he published *The Garden of Cyrus, or the ncunxial lozenge, or network plantation of the Ancients, artificially, urally, and mystically considered.* This discourse he begins with the red garden in which the first man was placed, and deduces the prac- of horticulture from the earliest accounts of antiquity to the time of Persian Cyrus, the first man whom we actually know to have planted uincunx, which, however, Sir T. Browne is inclined to believe of an lier date, and not only discovers it in the description of the Hanging rdens of Babylon, but seems willing to persuade his reader that it was etised by the feeders on vegetables before the flood. Some of the st pleasing performances, observes Dr. Johnson, from whom much of narrative is derived, have been produced by learning and genius rcised upon subjects of little importance, as if wit was proud to show v it could exalt the low and amplify the little. In the prosecution of s sport of fancy Sir T. Browne considers every production of art and ure in which he could find any approaches to the form of a quincunx; l, as a man once resolved upon ideal discoveries seldom searches long vain, he finds his favourite figure in almost everything, whether ural or invented, ancient or modern, rude or artificial, so that a reader watchful against the power of his infusions would imagine that to ersect at acute angles was the great business of the world, and that ure and art had no other purpose than to exemplify and imitate a ncunx. These fanciful sports of great minds are never without some antages to knowledge, and in this playful effort of his genius Sir omas has interspersed many curious observations on the form of nts and the laws of vegetation; appears to have been an accurate erver of the modes of germination, and to have watched with precision gradual development of growing plants. This was the only work ative to the vegetable kingdom sent to the press by him in his lifetime, from among his papers were published, with several others, a post- nous treatise, entitled, *Observations upon several Plants mentioned Scripture*, and another, *Of Garlands, or coronary and garland plants.* e last a subject of mere learned curiosity, but the other, often serving how some Scriptural propriety of description, or elegance of allusion, erly undiscoverable to readers not skilled in Oriental Botany, and even remove some difficulty from narratives, or some obscurity from pre- its.

The other events of Sir Thomas Browne's life we will epitomise from same great biographer to whom we have already acknowledged our- es indebted. He was born at London, in the parish of St. Michael, Cheapside, where his father, descended from an ancient family at Upton, Cheshire, pursued the avocation of a merchant. Of his youth little is own, except that he lost his father whilst very young; that he was, ording to the common fate of orphans, defrauded by one of his rdians; and that he was placed for his education at the school of nchester, and Pembroke College, Oxford. After taking his degree of ster of Arts, he turned his studies to physic, and practised for some e in Oxfordshire, but soon left it for Ireland, and then, as he who once ins a wandering life very easily is induced to continue it, proceeded travel on the Continent, studied physic at some of its best schools, and ered the degree of Doctor at Leyden, before he again returned home. m after, in 1636, he published his celebrated treatise, *Religio Medici* e Religion of a Physician), a work fundamentally Christian, and com- nding attention by the novelty of its paradoxes, the dignity of its timent, the quick succession of images, the multitude of abstruse allusions, the subtlety of disquisition, and the strength of language. Soon after this he married Mrs. Mileham, of a good family in Norfolk—a union which was fair game for the contemporary wits, who failed not to point out passages in his new work in which he states, "the whole world was made for man, but only the twelfth part of man for woman;" and that "man is the whole world, but woman only the rib or crooked part of man." However, she had no reason to repent, for she lived happily with him forty-seven years, and bore him ten children, survived him two years, and passed her widowhood in plenty, if not in opulence. In 1646 he published his *Enquiry into Vulgar Errors*, to the catalogue of which, if a new edition were now published, a goodly addition even might be made from among the prejudices of gardeners. One of the beliefs which he classes among "Errors" science has succeeded in establishing as a truth; for the sympathetic needles suspended over a circular alphabet, by which distant friends and lovers may correspond, is realised in the electric telegraph.

But little more remains to be noted of his life. He published several other works, many of them useful, and all of them ingenious and amusing. In 1665 he was chosen honorary fellow of the College of Physicians; in 1671 received the honour of knighthood, and eleven years after was deposited in his last earthly place of rest, in the church of St. Peter Mancroft, Norwich. "I visited him near his end," says a friend, "when he had not strength to hear or speak much; the last words which I heard from him were, that he did freely submit to the will of God, being without fear." Yet by those who have not well weighed his writings, Sir T. Browne has been sometimes condemned as a contemner of revealed religion. Whether he has been so condemned by the fury of its friends, says Dr. Johnson, or by the artifice of its enemies, it is no difficult task to replace him among the most zealous professors of Christianity. It is, indeed, somewhat wonderful that *he* should be placed without the pale of Christianity who declares, that "he assumes the honourable style of a Christian," not because it is "the religion of his country," but because, "having in his riper years and confirmed judgment seen and examined all, he finds himself obliged, by the principles of grace, and the law of his own reason, to embrace no other name but this;" who, to specify his persuasion yet more, tells us "he is of the Reformed Religion; of the same belief our Saviour taught, the apostles disseminated, the fathers authorized, and the martyrs confirmed;" to whom, "where the Scripture is silent, the Church is a text; where that speaks, 'tis but a comment;" and who uses not "the dictates of his own reason but where there is a joint silence in both;" and who even goes to the unreasonable extreme of "blessing himself that he lived not in the days of miracles, when faith had been thrust upon him, but enjoys that greater blessing pronounced to all that believe though they saw not." Thus we hear his opinions from himself, and concerning his practice we have the testimony of others. When these testimonies concur no higher degree of historical certainty can be obtained; and they apparently concur to prove that Sir Thomas Browne was a zealous adherent to the faith of Christ, that he lived in obedience to His laws, and died in confidence of His mercy.

METEOROLOGY OF THE WEEK.—From observations made at Chiswick during the last twenty-three years, the average highest and lowest temperatures of these days are 60.4° and 42.7°, respectively. The lowest temperature observed, 28°, was on the 13th, in 1838. On 77 days rain fell, and 84 days were fine.

INSECTS.—Everybody knows the common May-Bug, or Cockchafer (*Melolontha vulgaris*), but very few persons recognise their larvæ or grubs, for we are continually applied to to state "what is the name of that pest which feeds on the roots of our young plants." To save our friends and selves from this trouble, we give a drawing of this grub; it is soft, smooth, grey, and the tail segments somewhat glossy; the head and feet brownish



dull red. The difference between the length of life of this grub and of the beetle proceeding from it is particularly striking, for whilst the grub lives through three winters the beetle does not survive longer than ten days. The grub is particularly destructive to grass. It undermines the richest meadows, says Mr. Kirby, devouring the roots of the grasses, and so loosening the turf that it will roll up as if cut with a turfing spade. These grubs did so much injury about ninety years since to a poor farmer near Norwich that the authorities of that city presented him with £25, and the man and his servant declared that he gathered eighty bushels of the beetle. It is to feast upon this grub more particularly that the rooks follow the plough. The beetle itself devours the leaves of fruit-trees, as well as those of the whitethorn, beech, sycamore, and elm; it is said never to touch the lime.

IBEE works, among a pile upon our table, are each so cellent of their kind that we will not do the injustice withhold from them this prominent recommendation our readers.

A Synopsis of the Coniferous Plants grown in Great Britain, and sold by Knight and Perry, at the Exotic Nursery, *King's Road, Chelsea*, is, without exception, the best book upon the Cypress and Fir tribes that has

been published in England. We shall not discuss such comparatively insignificant points as whether the authors have adopted some divisions in the botanical grouping which other botanists have rejected (points suitable to be dwelt upon by such as judge of a book by "its margin's breadth and binding"). It may be that the authors are wrong in such particular, but if they are wrong they have erred in good company; and they are altogether correct and excellent in more important and useful matters. Their attention to the synonymes of the different species, and the fulness of the index referring to every one of those synonymes, renders it one of the best books of reference relative to the cone-bearing tribes that has ever been published. But even this is not its best feature in point of utility, for as the authors justly observe, "The principal practical use of such a synopsis is to know which kinds are suitable for planting in a pinetum or an arboretum; as, at present, no large country seat is considered complete without some plantation of the kind." How the volume before us aids the reader who seeks from it this "principal practical use," will be best shown by quoting what the authors say about the genus Cedrus.

The cedar of Lebanon (*C. Libàni*) will grow in almost any soil or situation, but it varies very much in its appearance, according to the circumstances in which it is placed. When crowded with other trees, it takes a fastigiate habit, looking like an immense upright cypress; but, where it is allowed space, the branches, which are of a gigantic size, spread horizontally, and the tree assumes a somewhat pyramidal shape, the branches being disposed in distinct layers or stages, and diminishing in extent as they approach the top. The great beauty of this majestic tree being so well known, it will be unnecessary to say anything further respecting it. What is called the Silver cedar is a very distinct variety of this species, and it is supposed by some persons to be the same as the cedar of Mount Atlas.

The Deodar cedar (*C. Deodàra*) is found on the Himalayas at an elevation of from 7,000 to 12,000 feet; and, as it is now becoming well known in this country, it is almost superfluous to remark that it is, perhaps, the most ornamental coniferous tree ever introduced, and that, from its great beauty, rapid growth, perfect hardiness, and valuable timber, it is exceedingly well suited for being extensively planted in woods, parks, and pleasure-grounds. Dr. Falconer gives the dimensions of a fallen Deodar which he saw on the Himalayas, as thirty-six feet in circumference at the base, and one hundred and thirty feet in length. The same authority states that timber of the Deodar, taken from a temple supposed to have existed at least 1000 years, was, to all appearance, as sound as when first placed there, not affording a dwelling to even a solitary insect. Burnes, in his *Travels in the Mysore*, states that "the frameworks of the houses are made of Deodar cedar, which is floated down with the inundations of the river Schem, or Hydaspes, from the Himalaya. The durability and fragrance of the wood," he adds, "recommend it for buildings of every description." He further observes that he saw a "cedar tree lying on the banks of the Hydaspes, with a diameter of thirteen feet. On this river," he continues, "the Macedonians constructed the fleet by which they navigated the Indus; and it is a remarkable fact, that in none of the Punjaub rivers are such trees floated down, nor do there exist anywhere else such facilities for the construction of vessels." Bishop Heber, in a letter to Lord Grenville, alludes to a pine, evidently the *C. Deodàra*, as "a splendid tree, with gigantic arms and narrow dark leaves, which is accounted sacred, and chiefly seen in the neighbourhood of ancient Hindoo temples." The Deodar and the *Araucària imbricàta* are fine illustrations of two opposite styles of beauty in landscape: the Deodar being of a growth and hue light, airy, and graceful, and the Araucaria being dark, rich, and massive. The Deodar cedar is particularly valuable for planting singly on lawns, and avenue tree. For the latter purpose, it probably sur any other that has yet been introduced. The wood Deodar, Mr. Loudon remarks in his *Arboretum Britan* "has a remarkably fine close grain, capable of recei very high polish; so much so, indeed, that a table f of the section of a trunk nearly four feet in diameter by Dr. Wallich to the late Mr. Lambert, has been com to a slab of brown agate." It is also stated that the w the Deodar has been found perfectly sound in places it has been known to have stood upwards of 200 years. Deodar, like the cedar of Lebanon, will grow in almos soil and situation. That it is, indeed, admirably adapt planting in all parts of this country, is amply proved l noble specimens which are to be seen growing so luxur in the Royal Botanic Garden at Kew, and in the Gar the Horticultural Society of London at Chiswick, as w at the country seats of many distinguished amateurs c dening, and more particularly at Elvaston Castle, Drop Panshanger, and Heckfield Place. It is, therefore, hoped that our large landed proprietors may be induc recognise the beauty and value of this, perhaps, be trees; and that the day is not far distant when our hill will be covered with it and other exotic conifers, the beauty of which will produce a most pleasing and an i tant change in the landscape scenery of Great Britain.

The Mount Atlas Cedar (*C. élegans*) resembles, habit of growth and general appearance, the cedar of non, except that its leaves are much whiter; which liarity has probably given rise to its being frequently the Silver cedar. The wood of this species is said to b valuable.

The Villa Gardener, originally written by the lat Loudon, and now re-edited by his widow, has o those long title-pages which no one ever reads, which, like the tiresome symphony to an agreeable every one skips over. The last simile is pecu applicable, because if the title-page of the book is lessly prolix, the book itself is excellent. It teach how to lay out and arrange the grounds of a subu villa residence "from one perch to fifty acres an wards." But it does more than this, for it gives for structures from the aristocratic conservatory to the humble hen-roost, and lists of trees and p suitable for every locality from a plantation to a terre. The whole is profusely illustrated with which may be consulted with advantage by the dener, as well as by ladies and "those who know lit gardening and rural affairs," for whom the book is cially intended. We have marked many passages w we should like to extract, all characterised by the ling good sense, and all told in that plain intelli form, that were the author's especial excellencies we must confine ourself to this one, upon the too neglected form and position of a house:—

As the cubic form is known to enclose more space wit same quantity of walling and roof than any other, so it established rule, that a house square in the plan is p able in all that regards comfort, habitableness, and eco of heating, keeping clean, and in repair, to one which is gular in its plan. The next best form to a square is t a parallelogram; and the worst form that can be adop that of a long, narrow, irregular building. A square is more compact within, and, from its form, it is warm winter and cooler in summer than any other; it is easily heated; it has less space occupied by passages, a consequently, more easily cleaned; and, externally, it ex less surface to the atmosphere, and is, consequently, easily kept in repair than any other. When economy main object, therefore, a square house ought to be ch and, that it may combine architectural beauty with eco

both in first cost and future management and repairs, one should be chosen in which the same description of brick or stone, the same style of workmanship, the same magnitude, kind, and disposition of windows, the same facings to them, the same kind of cornice, and, in short, the same architecture, is adopted on all the four sides. Above all things, as a matter of taste, a house ought to be avoided which has any one of its sides decidedly inferior to the rest, in respect either to architectural design or execution. We should say, also, avoid, in point of habitableness and comfort, every house, the diagonal line of the general plan of which is not south and north; were it not that this maxim would condemn all those houses which have been built along, and parallel to, streets or roads which run directly east and west, or north and south. Unfortunately, the custom of placing small country houses that are near streets or roads with one of their sides parallel to that street or road, and without any reference whatever to its direction, is almost universal, even where there is a distance of 100 yards or more between the road and the house, though it is productive of two serious evils, which admit of no remedy. The one is, that the opposite side or front of the house to that which faces the road is considered as the back, and is, therefore, generally designed and finished in an inferior style; and the other is, that no attention can be paid to placing the diagonal line of the plan of the house due south and north; and that, whether this is the case or not, depends on the direction of the road, and not on the will of the builder. The latter is much the greater evil; for so numerous are the advantages of this disposition of the plan, in point of solar light, warmth, ventilation, and cheerfulness, and even dryness and healthy vegetation in the garden or adjoining grounds, that, in our opinion, it ought to be made the governing principle in the placing of every detached house, whatever may be the direction of the road to which the house may be said to belong.

We hope that the work may sell extensively, not only because the information it contains, we think, will be beneficial if extensively diffused, but because it is, we believe, published at the risk of the editor, whom every one must admire for her literary acquirements, and for the noble way in which she addressed herself to the task of extricating her husband's property from the difficulties with which he had left it surrounded.

A new Practical System of Fork and Spade Husbandry, by John Sillett, deserves to be extensively read, for it is full of instruction for the holders of small plots of land. The teacher we thus recommend is unexceptionable; he is a small tradesman, of plain education, who thinks he derives all his subsistence from the soil he forks over with his own hands. Let him tell his own story:—

I served my apprenticeship to a grocer and draper, and at the expiration of my time I went to London; I lived in different situations as a linen draper, and a short time at Birmingham, in the same trade. I afterwards returned into the country and went into business, as a general shopkeeper, in a village called the "Garden of Suffolk;" but it proved a very unproductive garden to me, for after six years' struggle I was placed on the wrong side of fortune. I then left this place and went to London, where I carried on a business in haberdashery, etc., for several years. In consequence of family sickness, I was necessitated to return to Suffolk, and carried on a business in my native village (Kelsale) where I now reside.

Having a natural taste for a rural life, and reading works on Husbandry, I was always anxious to catch hold of any books or articles in the newspapers treating on the subject; the first thing that most particularly struck my attention, was an article in a newspaper, headed, "*How to keep a cow and a pig upon an acre of land.*" This so forcibly attracted my notice, that I had the curiosity to cut it out and paste it in my scrap book; if I remember right, it was copied from the "Labourers' Friend's Magazine." Probably there are many of my readers that have never seen this statement, and thinking it may be useful and interesting to many, I shall presume to give a correct copy of it:—

"*How to keep a Cow and a Pig upon an Acre of Land.*

"1. Never let the cow out of the cow-house. 2. Carry her food and water to her. 3. Do not keep one foot of land in pasture. 4. Dig your land instead of ploughing it. 5. Never throw away anything that can be turned into manure. 6. Keep your land well weeded, and collect a large dunghill.

"A small cow, which is best for a cottager, will eat from seventy to eighty pounds of good moist food of the following kinds in a day: lucerne, or clover, and the leaves of yellow beet, or mangel wurzel; from the beginning of spring to the end of autumn: and the roots of yellow beet or mangel wurzel, swedish turnips, potatoes, and straw; from the end of autumn till the beginning of spring.

"If the cow is curried once a-day, it will increase the quantity of milk.

"To procure the above-mentioned crops, you must have plenty of manure, which you will obtain by careful management. Rushes, potato-stalks, and weeds before they seed, should be industriously collected for the cow's litter."

I was so delighted with this account, that I resolved to try the experiment as soon as an opportunity offered. Shortly after, my mother died; and, according to my father's will, the two acres of land which are now in my possession were sold. Being determined to become the purchaser, I gave £118 per acre (£236), besides the necessary expenses incurred upon the purchase. This same piece of land my father purchased thirty years before for £130. *This land is freehold, tithe free, and land-tax redeemed*, and, consequently, entitles me to a vote for the county.

Soon after I had noticed the above account, I observed in a list of Mr. Cobbett's books one on Cottage Economy: thinking this book would be of great service to me, I immediately ordered one. Of all the novelties that it contains, the part which describes how to keep a cow off a quarter of an acre of land attracted my attention the most; this article quite astonished me, and was what I had never heard of before, and what no one would believe could be done. The description given how to produce the food for the cow off this quarter of an acre is very interesting and useful; and I shall ever feel grateful to the *noted* William Cobbett, for the valuable information that his "Cottage Economy" contains. It is from this excellent book that I learnt all my *first principles of sowing and transplanting*. I was so much delighted with the simple and pleasing manner in which this book is written, that I was induced to purchase Mr. Cobbett's "English Gardener," "Year's Residence in America," etc., from which I have derived much valuable information.

I had not long begun my labours, before I was beset by my neighbours, who condemned me most severely for breaking up such a beautiful piece of pasture. They were quite sure I did not know what I was about, and that I should soon get tired of it; and I believe all concluded that I should soon be glad to give it up; but, despite their opinions and interference, I was determined to pursue my course, feeling a firm conviction in my mind that I should master all difficulties, and eventually succeed. I am proud to say that, by adhering to the principles of *temperance, frugality, and industry*, I have for these last seven years been enabled to support myself and family in a comfortable and respectable manner.

Besides the greatest of all benefits that I have derived, in restoring a sickly constitution to perfect health, I felt delighted at the thought of being independent of the harassing cares of business. Of all the feelings which we possess, none is dearer than consciousness of independence; and this no man who earns his living by the favour of the public can be said to enjoy in an equal degree with the husbandman. In trade, there is a great jealousy and competition existing, and a submission to the public, which is galling to the spirits. But, since I have given my attention to the cultivation of the soil, I find I have no competition to fear, have nothing to apprehend from the success of my neighbour, and owe no thanks for the purchase of my commodities. Possessing on my land all the necessaries of life, I am under no anxiety regarding my daily subsistence.

This trustworthy practitioner of what he teaches then proceeds to state his modes of cultivation, cropping, and management of his two cows and pigs. For these we must refer our readers to the shilling pamphlet now before us, but we will give the result of one year's produce, *after deducting the family's consumption.*

SOLD PRODUCE OF THE YEAR 1847.

			£	s.	d.
Produce of two cows, after family's consumption, fattening one calf and weaning one			29	12	8
One calf fatted, weighed nine stone, at 8s. 2d. per stone of 14 lbs.	3	12 6			
Skin, head, feet, &c.	0	16 0			
			4	8	6
One year-old heifer			5	0	0
One fat pig of eight stone, at 8s. per stone			3	4	0
Twenty sacks of potatoes, at 8s.			8	0	0
Twelve bushels early do., at 5s.			3	0	0
Seven thousand cabbages, at ½d.			14	11	8
Twelve pecks of onions, at 1s.			0	12	0
Various seeds, vegetables, &c.			5	15	0
			£74	3	10
Deduct rent for land, at five per cent. on purchase-money (including expenses) £250	12	10 0			
Rent for house	8	0 0			
Rates, taxes, &c.	2	12 0			
			23	2	0
Net profit for the year			£51	1	10

This fully confirms the statement made by an alderman in our pages a short time since, of the profit to be made out of land, and fully justifies us in the efforts we have made to benefit the peasant, and through him the kingdom at large, by advocating an extension of the ALLOTMENT SYSTEM.

THE FRUIT-GARDEN.

FORMATION OF FRUIT AND KITCHEN GARDENS.—As many of our readers will doubtless be engaged in such matters, at this or some other period, a few points of advice will probably prove acceptable to the unlearned in such things; and as the subject is a wide one, and too broad to be completed in a single paper, we must run it on as occasion serves, adapting our remarks as much as possible to the period at hand. In discussing this subject, it may be well to assume the case of a proprietor, having new gardens to make out of open arable or pasture land; and it will be our duty to point to a judicious selection of site, leaving the disposal of the floral matters to our worthy coadjutors. The culinary garden, we fear, we must perforce intrench on, inasmuch as the subject of a fruit-garden is necessarily woven into it. It is not our present purpose to discuss mere orcharding matters; such may be said to concern a small minority of the readers of THE COTTAGE GARDENER.

SELECTION OF SITE.—Two very important considerations are here very apt to come in antagonism, viz., the choice of a proper soil, with a proper situation.

The architect will insist in planning a house, that all other considerations must be waived in deference to his claims. The landscape gardener complains afterwards that he ought to have been consulted by the architect, and then things could have been done in a much superior way, whilst not unfrequently the sins of both are made manifest for ever in the selection of a bad site, and ungenial soil for the fruit and kitchen-garden. All this merely shows that such a harmony—*theoretically, at least*—as exists in our time-honoured constitution, in which the three estates constitute in their very essence a constant countercheck on each other, should be observed in the erecting a house, embellishing its grounds, and establishing that which, after all, is the *summum bonum* of the whole affair—at least in the surveyor general's eye—a good and plentiful kitchen and fruit-garden.

Now, to endeavour to prevent all the aforesaid necessary officers from knocking their heads together is certainly a very bold attempt; but with the permission of the class termed carpers, we must really endeavour to do something, now that the ice is fairly broken. As to a site for a house, we must just in charity suppose, that the designer has not been of so exclusive a character but that he has left chances enough for the landscape gardener and the schemer of the kitchen-garden; and in order to collect the matter in a focus, we must beg to suggest, that the two latter distinguished professionals are united in one.

In the first place, we would never allow the kitchen and fruit-garden to be farther than about two hundred yards from the house, and we would never permit it to be nearer than fifty yards, which indeed is too near as a principle: still we would fain make our remarks as broad as possible. Any cases in which the kitchen-gardens come nearer still to the house, or forsooth form even a portion of the frontage, we do not at present include. Such are generally mere town gardens, or those of the cottager; and it will be best to treat of such in a separate way subsequently.

Our remarks now must be considered as chiefly applicable to the ornamental suburban villa, to the *ferme ornee*, &c., &c; occupied in the main by retiring mercantile gentlemen, who wish to enjoy according to the famous old maxim, "ease with dignity."

Next in importance to selecting good soil for the kitchen-garden should be, the providing an intervening plot of ground of sufficient compass to screen and conceal the culinary department. There are those who attempt to render it as conspicuous as possible; but for our part, we consider that although a systematic looking and fruitful kitchen-garden is one of the most agreeable objects imaginable, yet that it has no claim to forming a portion of the scenery, as seen from the principal windows of the house. We would have both the kitchen garden and a mass flower-garden strictly episodical, that is to say, digressing from a principal walk, which should make one bold range through the best features of the place, possessing a proper circuit through some well concealed part, and entering at right angles to the commencing part, which would sufficiently point out its character as a return walk. The point of junction should be densely planted with shrubs, &c.

We can now fancy the ardent florist exclaiming—"What! won't he allow us any flowers on the lawn before the windows? are we to have nothing to look upon but a cold landscape?" Oh yes, by all means! and before going farther with the culinary and fruit garden, we must beg to say how.

We do think it bad taste, and a kind which will one day be entirely superseded, to bespatter a lawn in full sight of the windows with flowers of evanescent habits, when the immense accession and cultivation of choice shrubs in later years offers such excellent facilities for serving the double purpose of forming an appropriate foreground to the landscape, and of combining with it as much colour and floral habit as the eye in general is content to rest upon. Masses of "Americans," roses, the dwarf or flowering shrubs, plants or groups of such things as fuchsias, &c., &c., with here and there a group of hollyhocks, the taller delphiniums, with any other high, pointed, and showy herbaceous plants, might be occasionally introduced—not among but between them, in order to relieve flatness and monotony of outline, to which groups of dahlias, &c., may be added. These, then, with plenty of roses inclining to the perpetual character, with huge specimens of exotic plants in tubs or pots, placed judiciously, chiefly as appendages of the house, would in our opinion produce a lawn most agreeable and interesting both in winter and summer.

Such admitted, why then, as before observed, a mass garden, an annual garden, a little rosary, a Dutch garden, &c., &c., might, as room permitted or fancy dictated, form digressive sallies from the principal walk; always taking care to give partial concealment by planting, in order to give an idea of snugness and privacy, as well as to make these little episodes subservient to the general effect as to their exterior—a point too little attended to. Thus

an establishment possessing only a very few acres might be made the epitome of a nobleman's seat. We must here deprecate the idea of compelling parties perambulating gardens to pass through every little flight of fancy which the peculiar bent of the proprietor has called into being. Rather, we say, so place them with such significant indications on the face of them, as that the visitor or stranger may at once know their purpose, and possess the power of passing *by* and not *through* them, if his taste so inclines.

We must now beat a hasty retreat, and get to the kitchen or fruit-garden, for we begin to feel that we have been poaching on the manor of our good friends Messrs. Beaton and Fish. We crave pardon for the liberty taken, and shall not be surprised to find these gentlemen before long doling out a chapter on plums or peaches in a retributive way.

Boundary matters and such preliminaries toward the establishment of a good garden being passed, come we now to the kitchen and fruit-garden, which we may suppose partially or wholly surrounded, as the case may be, by what are termed "slips." The use of such may not be apparent to a stranger, and we may as well talk a little about these appendages, and their uses. There is no special reason why a slip should form an appendage of a garden, as far as the culture of fruit-trees or vegetables are concerned, excepting that walls being expensive things, the exterior surface of walling around the gardens offers an opportunity for the culture of certain fruits not to be lost sight of. Well, then, since the walling *must* be made use of, protection must be afforded against the depredations or trespass of either bipeds or quadrupeds: hence the necessity of an outward enclosure, and hence the origin of "slips."

Now, in plans of small calibre, a slip may subserve a double purpose. After apportioning a border to the wall-trees, and a walk in front, together with a row of standard or espalier fruit-trees on the other side of the walk, the remainder may be made to subserve decorative purposes, and become an adjunct of the pleasure-grounds. In such a case it is well to plant standard and dwarf trees alternately, and perhaps some bush-fruit; this will produce an irregular outline, quite compatible with the effect sought to be produced by the shrubbery adjoining. The trained or fancy espaliers will, of course, be planted in the kitchen-garden. By this mode there need be no walk between the slip and the pleasure-ground, but the shrubs may run into and mingle with the fruit-trees. This, of course, is supposing that room is scarce, and that the kitchen-garden joins some portion of the dress grounds.

Thus much about the slips: we must now give attention to the walls. It is in general allowed, that a parallelogram is the best form, and there seems no reason to depart from it. Admitting such, it would seem the best policy, under the present conditions of fruit culture, to make the side walls (running north and south) about one-third longer than each of the two ends; for by these means a much greater extent of comfortable aspects may be produced, and a much smaller extent of northern aspect—the most useless of any. There will of course be less of *direct* south, but this we do not care for; there will be sufficient for a few peaches and nectarines, or perhaps vines and figs; the rest may be grown well in three parts of the kingdom on the east and west aspects, provided the borders are *not deep*. In this opinion we may have many practical men against us, but this will not deter us from offering such advice, coupled, as it ever will be on our part, by a cautious mode of procedure in planting and the use of platforms.

Now, with regard to the direction of the walls; there seems no reason to depart from the old practice of "the cardinal points;" nevertheless it will sometimes happen that they must be in some degree departed from, on account of the situation of the mansion, or other matters.

The subject must now pass on to another occasion, when we must force our way through the kitchen-garden doors, and see what can be done as to interior arrangements.

R. Errington.

THE FLOWER-GARDEN.

We have a plan in The Cottage Gardener which, although we never say anything about it, must have been seen all along, and that is—that none of the writers engaged regularly on the work, interfere with each other's plans or opinions, and thus we get rid of puffs, praises, wranglings, and all kinds of uncharitableness which used to be the leading features in our periodicals. Happily, other works on gardening and botany are *now* conducted more like our Cottage Gardener than such works used to be; and I hope to live to see the day when all envy, hatred, and malice shall be swept away from the surface of our gardening literature. With us, in these pages, every tub stands on its own bottom, brimful of entertainment and instruction, and if one of us should so far deviate from his common path as to come in contact with a fellow-tub, no harm can come of it, beyond a scratch or two—that is all. And even that I shall escape this time, on coming in contact with a tub of sound bottom; for to tell the truth, I very much wish to back Mr. Errington in his plan of growing *gooseberries* on espaliers—but entirely for the benefit of his readers. I do not recollect having ever entered a small garden where no gardener was kept, or where a man of that stamp was not called in to dress the trees occasionally, but I saw the gooseberry bushes mismanaged beyond every thing else in the garden. I think his plan of growing this fruit is one of his very best arrangements; and I hope he is not half done with it yet. To my own personal knowledge, there is not one out of a dozen of those handy men who job about "dressing trees," knows even how to prune a gooseberry tree properly. Here, where people say we carry things by the weight of the purse, we find Mr. Errington's plan the best and most economical way of getting a large crop on a small space, and the easiest way of securing it from *fruit suckers* when we have got it.

China-asters.—The most curious thing I heard of this season was a question asking, "If China-asters were got by cuttings?" but recollecting that I often asked questions of that nature myself, I give heed to it, and the more, as my own China-asters were seldom more noticed than they have been this very season, notwithstanding all the dry weather they had encountered while yet in their infancy. Still, I fear they are not altogether what they should be, for it was only the other day that two great London gardeners went over the garden with me, one of whom beats me out and out with his grapes, and the other grows my seedling geranium *Punch* more like Master Punch himself than any of the thousands of them he saw with me here; and he was so elated with his success, that he overlooked my success with the China-asters, and even forgot that he saw anything of the sort until he was asked by his fellow-traveller, on their way home, what he thought of them! Now, this is very easily accounted for: the great grape grower is also a great fancier of good China-asters, and other good things in the florist's way, and of course such things take his notice wherever and whenever he meets with them; and to tell the truth, I did not expect that our China-asters would attract the notice of strangers this season, for I had them planted very differently from the usual way, at least, from the way they are generally planted in large places. It is well-known that we plant many things here to produce shading, or shades of

colour, both in beds and in rows, and in order to do this to our fancy we often plant three shades of the same colour, or rather three kinds of plants having different shades of the same colour in the flowers. Now, all the China asters here were used in this fashion this season for the first time in my experience; but Sir W. Middleton, my worthy employer, says the old gardener often planted them that way. Indeed, he often wished me to try the plan before this season, but somehow or other I could not believe they could be so usefully employed as in separate beds by themselves in the more usual way. It will now be seen that the "great gun" who grows *Punch* greater than anybody else, looked on our beds and borders as so many fine shades and contrast of good rich colours; looking to well marked contrasts rather than to the plants which produced them; and this is always the best way to look at a flower-garden for mere pleasure; but when one wants to learn a "notch" or two, he must examine the plants to find out the kinds, and learn all he can about them, but never to ask the master or man for seeds or cuttings of them, *if it is a show place*, for this simple reason, that if one out of ten who visit show places were to be indulged that way, there would be very little left behind to show to those who come late in the season. Since I entered the experimental garden of the Caledonian Horticultural Society, in Edinburgh, in 1827, to this day I had the *mis*fortune to be engaged in what is called show places; and I write, therefore, from experience on this point,—indeed, I could write five hundred anecdotes, and some of them amusing enough, to confirm my view of it.

Well, then, the China asters were planted in rows here this season between two other rows of distinct colours, but the two colours would not contrast or help each other to have a good effect; but knowing the colours of the China-asters from the packet of seeds, the plants were disposed so as to help the colours on either side to agree better. I did not know whether the great grape grower was pleased with this contrast or with the individual heads of flowers, some of which are yet very good; very likely, being a great florist too, he noticed the size of the flowers. I said, already, that I I wellnigh spoiled many of our bedding plants this season by giving them too much liquid-manure, to make up for lost time through the dry weather in June. The China-asters came in for their share of this strong water, indeed their positions caused them to have more of it than I liked, but the result proves conclusively how much finer high feeding caused them to be; and I shall never forget that a good supply of good strong water will always be acceptable to them.

Now, as these China-asters are excellent things for a mixed garden, and as many of our readers know very little about the way gardeners manage to rear them from seeds, I cannot do better than explain the process, till they are fit to be planted out where they are to flower; and after that, as we have just seen, good soil and an abundance of good liquid-manure will bring them out as much as their nature will allow of; and here, if I were only writing for gardeners—and these China-asters were new plants that they had not seen grown before—all that would be necessary for me to say would be, to treat the seeds and seedlings just in the same way as they now do their celery, which would be just so much Greek to one-half of the numbers of readers which this COTTAGE GARDENER has brought on the stage. Now the way with us gardeners is this: we make three *sowings* of our celery and of our China-asters every spring;—but let us take the asters only, and suppose we want them to come into flower as early as possible, we make a slight hotbed for them any time after the middle of March for the first crop; or, what is more likely, we should make use of a spare corner of a pit or bed already in use; sow the seeds in light rich soil, and in shallow pans or wide-mouthed pots, drained one-third of their depth; water then, and as soon as the seedlings were up we should place the pots where they could get most air, and after a few days take them to a cooler place, but always allowing them as much air as would keep them from growing weak and spindly. After the seedlings are strong enough to be handled they are pricked out, or transplanted into nursing pans, on a small scale, or into an expended hotbed, if on a large scale, to be covered with hoops and mats, if no glass covering can be spared for them. If they stand three inches apart at this stage it will be sufficient; and as much air, day and night, must be allowed them as the state of the weather will allow of, but they must not be permitted to suffer from frosty winds. As soon as they grow so as to get crowded, a bed of light rich soil should be got ready for them in a sheltered place in front of a house, pit, or wall; and here to be transplanted the second time, and six inches apart from one another, well watered, and covered over with a mat on cold nights; and as soon as they rise to six inches in height they are ready to be transplanted finally where they are to flower—in beds by themselves, or in rows among other plants, or into patches of three, five, or seven plants along a border, or in a bed of mixed flowers. A second way, and which is very convenient, is to remove only every other plant from the last nursing-bed, and let the others stand until they show enough of their colours to enable one to see what they are, and then to remove them into the flower-garden, with balls of earth hanging about their roots, and planted according to their colours, or mixed, or in any other way which fancy may dictate. I have seen whole beds of them each in distinct colours, say a deep blue bordered by a lightish blue, a flesh-coloured one, a deep red one, or a variegated one, or a circular bed with a patch of dark blue in the centre, and then rings of the various colours placed round them to the outside of the bed. I even have seen a bed tried this last way where some of the plants had to be removed three or four times before the planter was satisfied with the arrangement, and the plants suffered very little, if any, by this rough usage—for there is not a plant we use in the flower-garden which bears to be transplanted so well as these asters; but at each remove, and indeed ever since they bud for blossom, they stand and require very large doses of the richest liquid-manure, just as strong as the cauliflower or celery can stand it. Great fanciers of them hate the single or bull-eyed ones as cordially as any of us would a bad pen, or a tight boot; but if the eye had a fine large fringe of a brilliant colour, I see no great reason to turn them adrift after all the pains taken with them. To be sure they would be apt to impregnate the double ones, and so spoil the seeds for next season; for we must remember they are not really double flowers, for if they were they could not possibly bear seeds; they are only compound flowers or *Compositæ*, as the asterworts are called in our DICTIONARY, and as I explained last week. Therefore, the least dust of foreign pollen will as assuredly impregnate a double China-aster, or a double dahlia, as the constant dripping of water will wear away the hardest stone rock; of course I do not mean that an aster would cross with a dahlia, no more than a hollyhock would cross with a geranium or a Turkey oak, because no flower will cross with one which is not of its own genus or family; but a dirty-coloured flimsy aster, with its evil eye, might impregnate a vast deal of mischief into a whole bed of the finest selection of the season.

I have heard it said, but I cannot tell whether it is really true or not, that the top flower of a highly fed aster is more liable to produce single kinds than side flowers. I only mention this, because it is exactly the reverse of a kind of fire-side theory which I have myself entertained for some years respecting composite plants, but whether I am right or wrong, I have not sufficient

materials to prove. Composite flowers are the most difficult of all to get sure proofs from by cross impregnation; I am not aware that we have a single experiment with any of them on record that is worth a button. For *a second crop* of China-asters, the seeds are sown under hand-glasses, with or without a slight hotbed, about the middle of April, the seedlings once transplanted to a nursing bed, and thence to the flower quarters, and *the third sowing*, which will suit the humblest cottager, is made on a sunny aspect during the second week in May; this sowing ought to be made much thinner than the other two, as the seedlings may stand on the bed till they are strong enough to be removed to where they are to flower. In either way, there is one point in their management that must never be lost sight of, and that is, from the appearance of the seedlings above ground to the fading of the bloom, they should never for one day suffer for want of food, and from cold or hot weather, or from the different removals, or, as gardeners say, never receive a sudden check, which is fatal to a first-rate bloom.

To wind up with a bit of flower-garden botany, I may as well say, that although we call them asters in a common way, they are not asters at all: the true asters are the Michaelmas daisies; and in our Dictionary the China-asters will be found under the word Callistemma hortense. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Young Roses—Roses in Pots.—Much has lately been said about the management of these royal flowers out of doors, but still the subject does not appear at all exhausted, or our friends have not yet learned the habit of so generalising as to perceive the "*what*" in general statements that would be applied to their own particular case. A letter lately reached us, with the post mark of Greenwich, pleasing, from the high laudations it contained of The Cottage Gardener, &c., but containing the sad drawback that it was sent to us in direct contravention of the orders of the helmsman of our little craft, and entailing, as disobedience generally does, disappointment to all parties concerned, as, not to speak of anything else, the letter only arrived here after travelling backwards and forwards to every post-office that bore any resemblance, however distant, to the one near to which I am located, while if sent direct to the editor, it would have received immediate attention. Most of what the letter contained has already been adverted to by our friend Mr. Beaton, and there is only one inquiry to which at present we will for a moment refer, because it will just meet the cases of numbers more who have purchased *Tea, Bourbon, Perpetual*, and *China roses*, in a very young state, planted them out in suitable soil, and yet, somehow, find they are even now so small, that they cannot make up their mind whether to take them up and give them the protection of a cold pit or greenhouse during the winter, or try some contrivance of sheltering them where they are growing. Now, in the case of all tender roses, such as *Teas* and others, which are *budded*, and especially on stocks above the surface of the soil, no better plan exists, than to take them up carefully and plant them in a shed, or against a north wall, before the frost comes with much intensity, defending them there from wet, and fastening spruce branches, fern, or a little litter among the branches. These should be planted out in April, and pruned rather close, as soon as growth has commenced, as the best flowers are generally produced from strong sturdy shoots. To keep up a good succession of bloom during summer and autumn, weak shoots, and those done blooming, should frequently be removed. This plan will answer better than taking up the plants, potting them, and giving them the assistance of a greenhouse, as some of our friends suggest. One of the advantages of planting them, when kept behind a north wall so late will be, that they will bloom when the first flush of the rose season is over, and will continue blooming later in the season than they otherwise would do. For those upon their own roots, instead of being at the trouble of potting them a similar system may be pursued, or they may be turned into rich soil in a cold pit, such as those referred to last week, and if not covered with glass, protected with some material that would keep them dry; as frost, however severe, is not so prejudicial to them as frost and wet succeeding each other alternately. In the case of all roses, however, upon their own roots, except the tenderest *Teas*, and even in the case of such of them as *Devoniensis, Safrano, Eliza Sauvage, Gobault*, &c., I have generally found that raising a cone of old tan, sawdust, or even half rotten dung, round the plants, which, when crusted by exposure, throws off the wet. Placing a layer of green moss over the beds, which excluded the frost, and sticking the bed over with evergreen or spruce branches, to moderate the keenness of the frosty winds, was sufficient to preserve them sound, and though the upper part of the plant was killed, they broke strong and bloomed luxuriantly from shoots sent up from the bottom.

The treatment of roses in pots, such as *China, Perpetual, Bourbon*, &c., about which a correspondent inquires, must be according to the time he requires them to bloom in his greenhouse. Tastes differ; and we ought to be sure of our premises before we pronounce another man's taste to be bad, but we would prefer dwarfs trained in a conical pyramidal form to our correspondent's standards. We shall at present confine ourselves to the questions proposed, leaving some other matters about roses for the greenhouse for another period, merely premising that to have plants of roses in good bloom in the winter months (and for this purpose the China and Bourbon group are about the best) the house must resemble a cool stove rather than a mere hybernatory for plants: in other words, the temperature should be from 50° to 55° instead of from 35° to 45°, and even then advantage should be taken of sunshine to raise the temperature at least five degrees more, or the flowers will not expand freely. True, you may gather roses out of doors in the commencement of winter when the thermometer is lower than the lowest point indicated, but then you have the assistance of energy stored up in the plant, and which you cannot reckon on after, say from the month of December to February.

Now, the first question with respect to these roses in pots is, "Ought I to repot them? If so, when? and should I shake any of the mould from them?" The best time to repot such roses is after they have finished blooming; and if you have a succession of roses, there will thus be a succession of potting periods. There is a peculiarity in the mode of growth of roses in pots that renders this necessary. Whether upon their own roots or budded, the best roots have always a tendency to get to the bottom of the pots; and when plunged, unless great care is taken, they will get out "by hook or crook" at the bottom of the pot, and then when you raise them up you lose all the finest roots instead of moving them within the pots where they would do good service. In potting, therefore, it is not only advisable to get rid of as much as possible of the old soil, but the stronger roots should be shortened that they may produce more middle-sized ones, and these in potting should be spread out, and receive an upward direction, and this should be encouraged also by surface mulching. The kinds referred to by our correspondent are many of them constant bloomers, and with moderate care they

will easily be made to carry a few flowers; but when fine masses of bloom at particular periods are wanted more attention is required. Here we think it would be better to introduce our correspondent's second question, "When should I prune them?" because the time of doing so has much to do with the success; as here, as well as in most other cases, both processes should not take place simultaneously, but advantage should be taken of the shoot's own leaves to form fresh roots, and these when vigorous should be employed in forcing vigorous young shoots after pruning had taken place. Hence, when some years ago I grew a number of *China* and *Tea* and *Bourbon* roses to bloom in a warm conservatory from Christmas to April, the first flowering ones when done with were removed to a pit, where they were protected from frost. In April or May they were repotted into fibry loam enriched with old cow-dung, and kept in the pit until the roots had nearly filled the pots, when they were placed right in the sun in June and July, plunged in coal-ashes, the flowers being chiefly removed, set against a north wall in August, kept rather dry, pruned by cutting-in the strong shoots in September, returned to a warm spot in the sun when the buds swelled, placed ultimately in the pit, and watered freely with manure-water, and then transferred to the warmest and lightest part of the conservatory towards the end of October.

Other successions just require less trouble. For instance, to bloom freely in March, the plants should be repotted in summer, shaded for a time from the sun, and then exposed to its influence, watered freely, the points of the shoots nipped, just to swell but not burst or break the lower buds, the pots plunged in ashes, old tan, &c., pruned in October, defended from frost, set in a heat of 45° in December, and gradually increased to 55° and 60°.

To bloom in April and May, the plants should be repotted in summer, plunged in a non-conducting medium, and, in the case of all the tenderer kinds the tops should be protected with fern, and be pruned in February, and then be gradually brought forward. Hardy kinds, about which there was no danger, had better be pruned in the end of autumn, as the buds would thus be better swelled. Without the half of all this trouble, we have had a good show in winter and spring, by merely thinning out the older wood, and giving rich top-dressing and manure-watering always several degrees higher than the air of the house, but I never had such a mass of flowers at one time.

Our correspondent will now judge for himself whether he will prune or not. If he can protect them, the sooner he does it the better. As to potting now, we decisively say no! because, without using artificial heat to plunge in, the roots would not be sufficiently in advance to cause the buds to break strongly, more especially if you wish for early flowers. Here the matter is very different from out-door planting. If partly pruned as recommended by Mr. Beaton the other week, and then some time afterwards transplanted, there is plenty of time for fresh roots to be formed before a demand is made upon them by the shoots in April and May. Instead of potting, our correspondent should remove the surface soil, top-dress and give plenty of liquid-manure when they are commencing growth, and afterwards. By these applications, a rose-plant, if the drainage is right, and the roots are prevented getting into the plunging material, may be kept in vigorous health for years in the same pot.

The questions, "whether the plants should be taken into the greenhouse, when should they be taken in, or should they be plunged out of doors?" have been indirectly answered. If late flowers this year or early ones in 1851 are desired, prune out the smaller twigs house them at once, if you have no turf or other cold pit to transfer them to. If spring flowers are what are wanted, keep them plunged and mulched out of doors, raising the mulch in a cone over the pit, so as to throw off a portion of very heavy rains; and unless you are certain of the perfect hardiness of your varieties, do not prune until you wish to start them, by removing them under shelter, but rather tie some fern or twiggy branches of spruce over their heads. R. FISH.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

FRANCISCEA.—This is a genus varying greatly in appearance and qualities, yet the greater number of its species are desirable plants, easily grown, free blooming, often very fragrant, and with handsome flowers, though not highly coloured; that is, we have no scarlet or crimson Francisceas; the colours that mostly prevail being blue, purple, lilac, and white.

F. augusta (August F.).—Pale blue stove shrub.

F. confertifolia (Crowded-leaved F.).—New, with fragrant flowers.

F. eximia (Noble F.).—Not yet introduced into this country generally, and we believe has not flowered; but the continental nurserymen describe it as a very fine species indeed.

F. Hopeana (Mr. Hope's F.).—Blue and white; a very neat desirable old plant.

F. hydrangeæformis (Hydrangea-flowered).—A new plant, not much known at present.

F. latifolia (Broad-leaved F.).—This is also a very desirable old inhabitant of our stoves, not nearly grown so much as it deserves to be. No other leaves that we know have so beautiful a green, especially when young. The flowers are as large as a half-crown, and when first expanded are of a beautiful pale blue, but as they become older they gradually change to white; and as the plant produces a succession of bloom, it frequently happens that the plant presents the phenomenon of having blue flowers and white ones at the same time, and both perfect; for in the white stage the flower lasts some time.

F. macrophylla (Very broad-leaved F.).—A noble plant, formerly known as *F. hygrangæformis;* flowers blue, in large heads; leaves very broad and numerous; lasting a long time in bloom.

F. Pohliana (Mr. Pohl's F.).—Pale blue, changing to lilac; a neat, free growing, and abundant flower.

CULTURE.—The plants of which the above is a select list of the best, are such as may be easily grown; do not require so much heat as most other stove plants, but will thrive in an intermediate house, or even in a pit deep enough to allow a little fresh air occasionally, and head room for the plants. Frequently in winter the plants here look completely dead, having wintered in a cold pit or frame just protected from frost. As soon as the grim winter passes away, the plants being then quite bare of foliage, are repotted and placed in gentle heat; a tan bed is the most congenial, excepting, perhaps, one made of leaves. The internal heat should not exceed 55° by day nor 50° by night, for the first month. After that period it may be allowed to rise to 60° by day and 55° by night. The *soil* suitable for them is a compost of loam, peat, and leaf mould in equal parts, mixed with a sufficient quantity of sand to give it a sandy character. In this soil they will grow finely, if all the other points are attended to.

Water.—In the early part of their growth they require very little water at the root, but the syringe may be used once or twice a week as the weather will allow, increasing the quantity of water at the root as soon as the leaves begin to clothe the plants with their beautiful green. When fully expanded they require a pretty large and constant supply of the liquid element, pure some-

times, and at others intermixed with a portion of food in the shape of liquid manure, but not very strong. The *Franciscea latifolia* and *F. macrophylla*, especially, require a liberal treatment to bring out fine foliage and handsome, well-coloured flowers of a good or even extra size.

Whilst in a young state these plants require some attention to training to form handsome specimens; the shoots must be topped and tied out, which will allow the centre ones to branch more freely, and spread out into a more pleasing shape. This attention must be continued for a considerable period till the object is fully attained.

Propagation may be effected by cuttings in the usual way we have so often described. Young shoots placed in sand under a bell-glass, in heat, root readily. We never observed any seed produced.

Geissomeria longiflora (Long-flowered G.).—This is another desirable old inhabitant of our hothouses which we feared was almost lost, but we have met with it in the north of England cultivated to a considerable extent lately, and grown for a purpose for which it it admirably adapted, viz., for winter flowers. The leaves are in pairs, moderate in size, and of a pale green; the flowers are in terminal racemes, of a tubular shape, about an inch and a half long, and of a beautiful crimson-scarlet colour; each raceme in a strong plant will measure four inches high, and it continues a considerable time in bloom. These qualities are sufficient, we are sure, to render it worthy the attention and cultivation of any of our readers who may possess a stove however small. The only objection we know of against it is, that it is not of a good habit, being apt to run up with a single stem and become what is technically termed *leggy;* but this only takes place under ordinary management. By a little extra care in early stopping the shoots, tying out the side branches in almost an horizontal position, which will cause more shoots to spring out of the centre, and by tying out and stopping these again, a tolerably shaped bushy plant may be procured. Where an extra specimen is desirable, and plenty of room is in the power of the cultivator, it may be obtained by placing five young plants in a pot sixteen inches diameter, one in the centre and four around it. So managed, we have seen a specimen with ten or twelve heads of its beautiful flowers finely expanded in the month of October, when most other plants were out of bloom. The *soil* this plant thrives in, is a compost of fibrous peat two parts, turfy loam one part, and vegetable mould one part. If the peat is not naturally sandy, which is seldom the case, add as much as will give the compost a sandy character. This plant is impatient of moisture; so, great caution must be used in watering it; and to prevent the soil becoming stagnant, use plenty of drainage, covering it with moss or some other material to prevent it being choked up. After it has done flowering, cut it down pretty severely, giving no water till the buds break out again, when it may have a sufficient quantity to prevent the soil cracking away from the pot, which it would do if too dry, and then the water runs down between the earth and the pot. Should that happen, let the surface be stirred and the loose soil pressed down into the crack previously to watering. As the growth progresses, attend to the stopping and tying out processes, and repot about the middle of April.

Propagation.—Like several other stove plants, the Geissomeria is not long-lived, neither is it desirable it should be so. Young plants make better specimens and flower finer; and as this plant is easily propagated it is so much the more desirable to cultivate only young plants. Three years is nearly as long as it is prudent to grow plants of this kind. Cuttings strike readily in sand under bell-glasses in heat. Short cuttings are the best, but if desired they will grow from buds alone. Take a shoot, cut it into lengths of one pair of leaves to each, cut the wood away both above and below the leaves, and then pass the knife exactly through the centre between the two leaves. This leaves a bud to each leaf. Insert them in the sand in the pot, with the leaves projecting inwards; if they are long, tie them upright to a small deal stick, plunge them in heat, and place the bell-glass over them. They will soon root, and the bud will start and grow quickly, requiring potting off and shading for a few days until they are established separate plants. By such a method a great number of stove plants may be propagated, but it need not be resorted to when nice short young shoots are to be had.

T. Appleby.

FLORISTS' FLOWERS.

Prolongation of Bloom.—Very lately we have seen an instance of *Dahlias* being preserved from early frosts, which we consider worth notice. They were chiefly of the fancy varieties, and were growing in a bed upon the lawn of a flower-garden. They had been pegged down whilst young, and kept so by repeated peggings, so that the highest plant did not exceed one and a half feet. The owner was desirous to prolong the bloom, and to do so, stuck in, all over the bed, some stout sticks, allowing them to stand up above the Dahlias from six to nine inches. Every evening when there was the least appearance of frost, the bed was covered over with garden mats, sewed together in two's and three's, removing them in the morning. By this slight protection they are yet in the greatest perfection, whilst all round the bed, such as were growing singly in the border and others in large masses, were all more or less injured and blackened with the frost. Such of our readers whose Dahlias may have as yet escaped from frost, would be wise, if possible, to try the above method; and the principle might be extended to *Geraniums, Heliotropes*, &c., &c., with the best effects. Now is a good season to mark in a book, kept for that purpose, the kinds of Dahlias, their colours, heights, and other properties.

T. Appleby.

THE KITCHEN-GARDEN.

Carrots.—The principal crop for winter supply should be taken up this month, choosing a dry day for the purpose. They may be stored in a dry cellar or dry shed, packed snugly together, but not in too large quantities, which would be liable to ferment. They keep best from fermenting or starting into growth, if stored for some time without placing any dry sand or charred materials amongst them, indeed, in a cellar scarcely anything of the kind is required at all, until late in the season, when a slight covering of straw, after lying a few weeks, will keep them secure. We make it a rule to pack them in narrow ridges free from the wall or the partition, with the crowns outwards on both sides; and in topping-off their leaves, we prefer *twisting* to *cutting* them.

Parsnips.—We find always that the best way to maintain the flavour of this vegetable, is to leave it in the ground. We wheel on the manure and spread it over them, and trench them out as required, casting the soil into ridges as we proceed, in the same manner that we should trench any other piece of ground.

Salsafy and Scorzonera may either be taken up and stored in the same manner as the carrots, or left in the ground in the same way as the parsnips.

Cardoons may be earthed sufficiently, a few at a time, as likely to be required, until they have made their final growth, when all may be well earthed on some fine dry day, and made secure against winter.

Celery.—Continue to earth this vegetable carefully in

its various stages, always performing the operation when the weather is dry.

CABBAGE AND CAULIFLOWER.—Take care that plenty of plants are duly pricked out a few inches apart.

CUCUMBERS AND MELONS.—Keep up a kindly heat about the cucumbers. If the top heat is kept to about 70° to 72° it is sufficient, now that the days are drawing in so fast, and the plants have consequently so much less light. *Late melons* require also a kindly heat to be kept up without much humidity. Where linings are used they should be kept well topped-up, in order to secure top heat in the interior of the pit or frame.

RADISHES.—Continue to sow in succession a few short top radishes on a little heat and close to the glass, and attend well to surface stirring amongst all kinds of progressing crops in favourable weather. JAMES BARNES.

MISCELLANEOUS INFORMATION.

SCALES OF EXPENDITURE.

*By the Authoress of "My Flowers," &c.**

ESTIMATE 3.

INCOME, 4s. 6d. per day; 27s. per week; £70 per annum.

PROVISIONS WEEKLY.	£	s.	d.
Bread and flour for five persons, 24 lbs., at 1¾d..	0	3	6
Butter, 1 lb., at 1s.....	0	1	0
Cheese, ½ lb., at 6d.....	0	0	3
Milk	0	1	0
Tea, ¼ lb. at 3s. 6d.....	0	0	10½
Sugar, 2 lbs., at 4d.....	0	0	8
Grocery—including rice, &c., and table condiments	0	0	7
Meat or fish, &c., say 6 lbs. at 5½d.....	0	2	9
Vegetables	0	1	2
Table beer—3d. per day	0	1	9
Coals—1¼ bushel per week, on an average, all the year round, at 1s. 4d., 1s. 8d.; and wood, 3d...	0	1	11
Candles—½ lb at 5½.....	0	0	2¾
Soap, starch, blue, &c., for washing.....	0	0	3½
Sundries, for cleaning, scouring, &c.	0	0	1½
Total for household expenses	0	16	1¼
Clothes and haberdashery.....	0	4	6
Rent.....	0	2	9
Extras	0	0	6
Total expense.....	1	3	10¼
Saving (more than 1-12th)	0	3	1¾
Amount of income.....	1	7	0

In this estimate also, I have saved 10¼d., by the reduction of price in tea, cheese, sugar, and candles, upon the original calculation, as, also, in the quantity of butter, as I have done in the last estimate. Cheese, quite good enough for persons if with more than £70 per annum, may be bought at 6d. per pound; and it should be eaten in moderation even then. To give 7d. and 8d. for cheese is extravagant, when we are struggling for life, and the husband only should indulge in it, whose bodily exertions need supporting food. When cheese is cut away nearly to the rind, it is made to go to the utmost by grating it; and I know, also, that the most superior cheese of the commonest quality and flavour is much *set off* by being grated and sent up nicely to table, that it passes for well-flavoured good cheese. This I know from our own experience; and a little grated cheese goes a good way; this is another recommendation too.

Candles may be had in London at 5½d. per pound. In almost every town they are not higher than 6d., which would add one farthing per week to the calculation I have made. I have made no allowance for mould candles, because when our eyes are young and strong, *dips* are quite good enough to work and read by, when means are small. For some months in the year candles need not be used at all, or only for an hour at night, if late sitting up is *necessary*—but if it can possibly be avoided, it ought not to be indulged in, as it is both wasteful and bad for the health. Store candles or dips, eight to the pound, are the best size for parlour use; but in the kitchen, tens, and even twelve to the pound are quite large enough. Careless servants will burn away an "eight" as quickly as they do a "ten." Candles are flared away very fast by being carried rapidly about the house, and this may be prevented to a great degree by a little management. Servants will generally go by candle light to put the sleeping-rooms in order for the night; but it is just as easy to do this by daylight, at an earlier hour, and should always be insisted upon. In a morning too, candles will be burnt long after it is light enough to extinguish them, unless the servants are careful, or a strict watch is maintained over these *little matters*.

Candles are frequently whisked out of doors at night when any thing is wanted from the yard or out-door offices. Coals, wood, and every thing that is likely to be required after night has closed in, should be brought into the house beforehand, or else a small horn lantern should be at hand for use, which will protect the candle from flaring away, and probably the house from destruction. Servants would find it much more convenient to have every thing within reach at night, than to have to go out of doors in hot, and cold, and rain, to fetch them.

Children and young people should always be trained to go about the house at night in the dark; waste and danger, too, are incurred by sparks flying, and the rapid consumption of tallow. If every thing is kept in its proper place in our rooms, and drawers, and closets, we shall be able to find almost all we want, as well in the dark as in the light. I was always accustomed to this habit as a child, and I can therefore confidently recommend it. Young people may thus become so expert in moving about in the dark, that they will not need a candle even when retiring for the night, without in the least neglecting those strict habits of cleanliness and neatness in which they should be rigidly brought up. This is a great advantage too; whatever makes us independent or useful, can be left off with ease, but cannot in maturer years be so pleasantly acquired; and it is surprizingly convenient to be able, when necessary, not only to do things, but to *do without* them.

As a satisfaction to some of my readers who may be doubting as to the possiblity of practising economy, so as to *live* upon £70 per annum, I will extract a passage from the valuable estimates in the work from which I have hitherto quoted:—

"To H. H. of the Isle of Wight, we are much indebted; his whole letter is highly satisfactory, as it corroborates and illustrates our system, and affords much practical information. Such a document speaks whole volumes, and we regret that we are not at liberty to insert it. This gentleman is an officer on half-pay, which is 4s. per diem, and produces him exactly £70 per annum, exclusive of agency, &c. His family consists of himself, his wife, two children, and a maid servant. The account was kept for six months, when the youngest child was from twelve to eighteen months old, and the other, a girl about five years of age, who is half her time at school as a weekly border; these children, and the servant, who is an adult, he considers as equivalent in his computation to three children. When his memorandums were made he had not seen these estimates, but kept the account merely to know that they lived within their income. In some of the items he vary a little, but upon the whole he expends between 4d. and 5d. a week more than our estimate states. In one part of his letter, this gentleman writes thus:—'I consider the

* Next week our correspondent will begin a series of papers entitled "Our Villagers."

similarity of the two estimates as really surprising and highly satisfactory. It may be proper to remark, that we have been sensible of no deficiency of food; my habits are sedentary and studious, but my appetite is always good, to which the sea air, probably, gives additional force. The safe is not locked from the servant, and the children eat whenever they are hungry; in short, there has been no particular attempt at saving, beyond that of having no company, committing no waste, and purchasing food of the plainest but best quality.'"

One proof is worth a thousand assertions. The Isle of Wight was never considered a cheap residence, and twenty-six years ago, when the new edition of "Domestic Economy" was published, every thing was far dearer than it is now. I sincerely hope that many who are striving to bring up a family beneath the pressure of honest poverty, will take courage from the experience of a *gentleman*. To an officer, whose life has been spent among convivial and perpetual society, the absence of "company" must have been great self-denial; but the enjoyment of a happy home, with the best earthly companions—his wife and children—without debt, and, therefore, without distress, are sweeter and purer pleasures than any other that this deceitful world can afford.

ON THE SPRING OF 1850,

AND ITS INFLUENCE ON THE FRUIT CROP IN THE COUNTY OF KENT.

As the very able writer of your fruit-garden department frequently alludes to the disparity between the climate of the northern and southern counties, in reference to the difficulties gardeners have to encounter in securing crops of the more tender as well as the more hardy fruits, I beg to lay before you a few remarks, showing that severe weather is not altogether confined to the counties north of the Trent, and as the place I now write from is in the centre of a neighbourhood long noted for its hardy fruits, being, in fact, near the middle of the county of Kent, where the extensive orchards of apple, cherry, plum, filberts, and the smaller fruits, form a very considerable portion of the parish maps—where, it may be fairly presumed, that the culture of these fruits, having been carried on for several generations, may have arrived to as great a state of perfection as in most other neighbourhoods—and as a favourable or adverse spring is acknowledged by all to have a wonderful influence on the crop, a few notes, which I made with care at the time, will tend to prove that we are not altogether exempt from the frosts and cold winds so hurtful to fruit-trees.

It may be necessary to mention, that the place I write from is somewhat elevated, being midway up a ridge of hill facing the south-west; below us is the extensive plain called the Weald of Kent, while behind us the ground rises some little distance, the summit not very many years ago being unenclosed waste. I believe, it is often thought a situation so placed, enjoys more benefits than one on an extremely low or high one; perhaps it may be so. Well, having explained that, I may add, that being furnished with a good registering thermometer, I have for some time noted down the variations of temperature, wind, and state of the weather, all of which things bear an important part in the fruit production way. So beginning with the winter, it is fair to observe that the autumn was mild and fine; until the 21st of December, when we had a little snow followed by frost, which on the night preceding the 29th of that month, caused the thermometer to fall to 16 degrees, whilst succeeding showers of snow, accompanied by frosts (not severe), kept the ground covered up to the 26th January, when a thaw and milder weather followed, which ended that month without being any way remarkable. February came in with severe gales of wind, mostly from the south-west and west; in fact, I have 21 days noted down in which the winds blew from these quarters; about the middle of the month a good deal of rain fell, yet not more, or, perhaps, not so much, as usually falls in February; the last few days of the month were dry, and the air cold, wind north and east—so ended February, being likewise not remarkable for anything particular, 24 degrees and 56 degrees being the minimum and maximum of the thermometer. March came in under very favourable circumstances; the dry weather of the last few days of February continuing with very little variation to the end of March; in fact, the unusual small quantity of rain that fell was remarked at other places as well as here, and doubtless to that cause we may ascribe the wonderful escape the fruit-trees had from the severe frosts at the end of the month. I call it wonderful, because I have on other occasions seen gooseberries and currants suffer very severely when the thermometer has sunk some three or four degrees below the freezing point. May I then ask Mr. Errington, if he still thinks we are exempted from severe weather, when on the morning of the 26th March, the thermometer fell to 17 degrees, and on the 28th it was 18 degrees? I guess he will think there must have been a mistake in the instruments, or that all unprotected fruit must have perished. I beg to assure him that neither the one nor the other was the case; the extraordinary dryness of the atmosphere at the time in a great measure neutralising the effects of the extreme cold, so that notwithstanding our peaches, nectarines, and apricots on the walls, protected only by single netting, received but very little if any harm, although they were on west, north, and east aspect; and the gooseberry and currants, which are certainly as tender as any of our fruits, escaped also, except in some very exposed places, I heard of a partial failure. One of the causes I attribute to their receiving no harm, is the vigorous state the trees were in, the crop of 1849 being all but a total failure in these parts; the trees, doubtless, were enabled to lay in a store of food capable of assisting them to overcome the blighting influence of unusual cold; that, together with the dry ground and atmosphere, certainly saved them from destruction at a very critical time; in fact, so exceedingly dry was the ground, that except in places where it had been recently turned up or otherwise made damp, the frost seemed to have taken little hold of it, the dusty portion not being any way stiffened, and the atmosphere being also less humid than at most other times, contributed its share in preserving to us quite an average crop of fruit from the remarkable cold, which the end of March taught us was unable to destroy. The wind during the month being from the north-east 10 days, north 6 days, and north-west 4 days, and the other directions the remainder; the days though very dry were not remarkably sunny, so that the thermometer the latter half of the month was never above 51 degrees, except the last day when it was 57 degrees, while in the early part of the month it was 50 and 60 degrees, and the long continued drought as visible on the grass field as the hot weather of July usually is.

With April we had more genial weather; occasional showers set things going in the ground, which was far from cold, but the absence of sunshine retarded the progress of vegetation in like ratio, and some slight frosts at the end of the month told us that winter had not yet left us. It may be worth recording as a matter interesting to naturalists, that the nightingale was heard on the 10th, and the cuckoo on the 16th, and the first head of asparagus I observed above ground was on the 12th; this latter test of an early or late season I have observed for many years, and, strange to say, the difference has been very trifling; the spring of 1847 was the latest. I said the deficiency of sunshine retarded vegetation, so that the 1st of May was ushered in with a great accumulation of its predecessor's work to do, or, in other words, the season up to that time was a very backward one, although the thermometer had never been below 31 degrees, and only twice 32 degrees, the highest being 63 degrees.

May.—This month—an important one to the farmer and gardener—was as usual chequered by the usual variety of changes common at this time. We have said the early blooming fruits escaping in a great measure the severity of March, advanced slowly through April; other later blooming fruits, as the apple and cherry, now are blooming, especially the latter; yet mark the contrast—a frost of three degrees, was quite sufficient to destroy the crop of cherries which 15 degrees has been unable to do to that of plums and gooseberries; but in this case the neutralizing powers were wanting; the ground certainly was not very wet, yet the atmosphere was loaded with moisture, and so extremely delicate is the cherry, that many trees had their young leaves and shoots completely destroyed by the frost, as well as the bloom, so as to look some weeks after as if the whole had been scorched with fire. The destruction of the early cherries was universal in this neighbourhood, a few of the later ones, as the Bigarreaus, had better luck, yet very few cherries were

grown. What makes the frost in this case more remarkable is that many of the gooseberries, though of a size almost fit for the first picking, and consequently much more sheltered by their own foliage, yet suffered by it; in some cases the shoulder or upper portion of the berry turning a rusty brown in most of the exposed fruit, nevertheless, the crop on the whole was a good one. Apples were more fortunate than cherries, being a few days behind them, they escaped the worst frosts; but some of those murky changes in the atmosphere, which old people call "blights," or some other cause, has reduced the abundant crop of blossom into only an average, or rather below an average crop of fruit, which, as in most other seasons, is also variable in places and in kinds too. But as apples are an important fruit crop, I will, with your leave, make their peculiarities the subject of a separate article; at the same time, I confess it appears a difficult task to explain what is often called a "blight," but I have no reason to doubt the opinion of those whose life and interest have been connected with the hardy fruit trade, and yet some fashionable gardener will, I dare say, smile at trees being pointed out to him which bear only alternate seasons, and others only if in a certain position. All this is more to be admired than despised, as science, with all its pretensions, has quite as often followed in the wake as pointed out the way. But I am straying from my subject, the object of which was to disabuse the public mind of the idea that fruit and other crops, though, perhaps, not suffering so much from adverse springs in the south of England as the north, are not entirely free from such misfortunes; but taking all in all, there is no question but that the trees here, having a better chance to mature their embryo buds the preceding year, are in a better condition to resist the changes I have above alluded to. In conclusion, allow me to say that tender wall fruits have been quite an average crop, gooseberries and currants a heavy crop, plums generally good, apples variable, filberts good, cherries next to none, and pears only good in places. Perhaps some of your readers will record what phenomenon connected with the weather and the crops occurred under their notice in different parts of the kingdom, in order that we may exchange notes.—L. M. N.

EXTRACTS FROM CORRESPONDENCE.

Guinea Fowls.—For the information of "A Subscriber from No. 1," I beg to state that "Guinea fowls" are occasionally brought to this market (York) by the farmers' wives and daughters, with the common poultry, and sold at 4s, 4s 6d, to 5s per pair. I have bought them in the market at both 4s and 4s 6d the couple. The Guinea birds' eggs are brought very regularly to market here; and as they are generally preferred at table to the common barn-door fowl's eggs, they fetch a rather better price, say from 16 to 18 for a shilling, whilst the others sell at 20 to 22 for a shilling. Should your correspondent have had no experience in Guinea fowls, it may be as well to inform him that they often stray and lay their eggs some distance from home, as they are particularly partial to grass, and consequently prefer the open fields. A safer mode of attaching them to home (than buying the full-grown birds) is to set the common domestic hen with Guinea fowls' eggs; and so long as she can exercise control over the young ones she keeps them within bounds.—Another Subscriber from No. 1.

Celery.—You encourage us to acquaint you with our experience, however limited, in garden matters. I therefore write to say, that I am this year growing *Nutt's Champion Celery*, on Mr. Turner's plan (see vol. i., p. 136), and would add my humble testimony to his concerning the horizontal growth of the roots of celery plants. Before earthing-up I could not stir, even slightly with my finger, the surface-soil, without coming in contact with numbers of little roots growing perfectly horizontally, almost along the top of the soil; also, upon pulling up one or two plants that had run, their roots had scarcely gone two inches downwards, all straight to the right and left. Now this week, upon cutting away the sides of the trenches for earthing, the roots protrude in great numbers beyond the original width,—one strong long fellow that I measured reaching *exactly* two feet from the plant. For the future I think of increasing Mr. Turner's width of trench, and for the convenience of watering, suffering (with deference to him) the level on which the plants are set to be somewhat below the surface-level around. I have added manure on both sides of the original trenches, and have no doubt that the roots will soon be quite through it.—Clericus, Beds.

Remedy for Bee Stings.—I beg to give for the use of the readers of The Cottage Gardener the following remedy for bee stings, and stings of all kinds, which I have found most effectual not only on myself but also on others. But this, as every other remedy, must depend on the person stung; for I am convinced that there is no one remedy which will cure stings in everybody, for where tobacco will cure in one instance, I have known it ineffectual in another. Sweet oil I have also seen used with beneficial results on one person, while on another who has tried it it has had not the least effect; but I think the following is the most effectual of any. It was given to me by a poor person, and I give it as I received it:—Spirits of wine, oil of spike, opodeldoc, camphor, sweet spirits of nitre—one pennyworth of each. The embrocation to be well shaken before using.—W. H. W.

Gladiolus Gandavensis.—To all unacquainted with gladioluses, I would by all means advise them, if they want a cheap and good one—one that will ensure satisfaction instead of disappointment—to purchase *G. Gandavensis*. I had one bulb planted at the end of February; it has thrown up two strong shoots; they are four and a half feet high from the top of the pot, with twelve on one and fourteen flowers on the other, have been in bloom nearly a fortnight, and have a few more flowers to open, and are the admiration of every one. *G. Cardinalis* I shall not bloom; they tell me it exceeds the other, but is difficult to bloom.—J. French.

Hens Eating their Eggs.—Your able correspondent, Martin Doyle (whose papers upon poultry I enjoy to read, having kept some myself a few years back), in his remarks (in July part, page 259) upon "fowls hatching," mentions the loss of several eggs from under a hen when sitting, and is doubtful in what way they were got rid of. Now I am convinced in my own mind that some hens will eat the eggs, should they get broken, and not leave a particle of any thing to tell how they have gone. With one of my hens when sitting I lost, upon three occasions, some of the eggs; but having two or three holes cut in the door of the fowl-house, with a centre-bit, that I might see all was right with the sitting-hens without opening the door, and thus disturbing them, I caught this hen just finishing the shell of an egg; and upon examining her nest I found two gone during the night, which had no doubt been broken when she turned the eggs; and had I not seen her at the moment, nothing would have been left to tell the tale, for the nest was perfectly dry. While writing the above I have had a visit from a country relative, to whom I was mentioning the circumstance, and he quite confirms my opinion, and informed me in addition, that a hen of his had, upon hatching, destroyed several of her chickens before she could be prevented, and would have taken the lives of all had not her own been forfeited for her unmotherly propensity; this I think is a more singular case than the other. I never yet knew any animal that would not protect their young to the very last—particularly hens.—*Westbourne Park Villas.*

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

Weak Vine (*A Subscriber, Croydon*).—Your vine, a Black Hamboro', was in your stable-yard against a north aspect for four years, and had never borne fruit; and by cutting away from time to time all lateral shoots, excepting the two top ones, it had acquired a stem about five feet in length and measuring about an inch in circumference; clean and healthy looking. This was planted in your new greenhouse, and has progressed very indifferently during the summer, not having made a shoot two inches in length. It threw out leaves, but not larger than would cover a penny-piece, which soon died off. It then leafed a second time, and with precisely the same result, and now looks very shabby. If you have, indeed, followed the directions given in The Cottage Gardener, as to border making for the vine, then the fault must lie in some collateral circumstances. You do not say whether your vine is planted inside

the house or out. It is evident the vine is "poverty struck," either through lack of moisture at certain periods or too much. Or, it may be that through a deficiency of ventilation it has been "starved to death." Remember that a north aspect in a stable-yard is not the sort of place to give healthy stamina to a vine. We must, therefore, presume that this, coupled with the severe check of removal, was quite enough to throw your unfortunate Black Hamboro' into a declining state. Were we in your case, we would purchase a good, strong, and well ripened plant from a respectable nurseryman, and plant in the end of next March, with a determination to see all matters of summer culture well carried out.

Strawberries on Light-soiled Bank (*W. R. I.*).—If you cannot renovate your soil and start anew, pray use the waterpot most liberally from the moment the first blossom opens until the first fruit changes colour. Cannot you apply a good coating of "mulch" on the heels of some liberal shower in May? Such applied two inches thick will be of immense service, by encouraging a host of surface fibres, and preventing a too rapid evaporation.

Cucumber and Melon Cuttings (*M. F. G.*).—These strike readily, but it is too late to talk about this in the end of September. An article framed expressly to meet the desires of yourself and several other correspondents will appear very shortly. We trust it will suit your case.

Malt Wine, or, as one of our correspondents more aristocratically terms it, Maltese Wine.—We have received three recipes for making this, and as we are quite unable from our own palate to decide which is best, we publish them all.

Maltese Wine, to be made in March or October.—To fourteen gallons of water add forty-six pounds of brown sugar, boil the sugar and water twenty minutes, skimming it well all the time; then pour it into a tub; when it is nearly cold, put in twelve pounds of raisins picked and chopped, and when quite cold put in two gallons of ale when it has fermented and is ready to be tunned; let it stand three or four days, stirring it every day; then put it into the cask with a pint of brandy, half a pound of sugar candy pounded, and two ounces of isinglass dissolved in a quart of the liquor. When it has quite done fermenting, bung it close up, let it stand twelve months, then bottle it. The cask should not be quite full. —(*A Grateful Subscriber*).

Malt Wine.—To a ten gallon cask, eight gallons of water, twenty-four pounds of good moist sugar, boil together half an hour, skimming it well all the time; put it into your tub till nearly cold; have ready two gallons of good ale when that is ready for tunning; mix it well together; work it in the tub two or three days; skim it three times a day. Then put it into your cask, with three pounds of raisins, the rind of six lemons, a little isinglass, and a bottle of brandy; let it work a week, then stop it close, and bottle it off in twelve months.—(*T. Phillips*).

Malt Wine, or English Madeira.—To make nine gallons, take five gallons of water, and boil in it for five or ten minutes twenty-eight pounds of sugar; draw off the liquor into a convenient vessel, and allow it to cool, then mix with it six quarts each of *sweet-wort* and of *tun*; allow it to stand for three days and then put it into a barrel. Here it will work or ferment for three days or more; then bung up and keep it undisturbed for two or three months, then add three pounds of whole raisins, half a pound of candy, and one pint of brandy. In four or six months it should be bottled. Three or six months in this state and it is fit for a king; indeed, it is the best of home-made wines. (*Sweet-wort*, is the liquor that leaves the mash before it is boiled with the hops. *Tun*, is the new beer.)—(*A Constant Subscriber*).

Choice Plants for a Greenhouse without Artificial Heat (*J. S. L.*).—We will try and do you service, but your want of artificial heat is a great drawback.

Ericas and good Plants for a Greenhouse (*J. S.*).—You will be attended to ere long.

Roses in Pots (*A Subscriber*).—See what Mr. Fish has said to-day.

Double Senecio Elegans (*A Lover of Flowers, Leeds*).—This came up in the border, and you ask how to keep it. Take some of the small side shoots off close to the stem with a sharp knife; remove the lower leaves, and insert the cuttings round the side of a pot, in light sandy soil, and cover with a hand-light, or set it in a frame. In a fortnight you might give these cuttings a little bottom-heat; pot them off when struck. To make doubly sure, after taking off your cuttings, cut your plant pretty well down. In a week cut round its roots; place a pot over it at night, to save it from frost, and raise it with a ball, and transfer it to a pot in a fortnight, to be kept in a pit or greenhouse.

Roses (*J. B.*).—*Victor Hugo* and *Duc de Treviso* are good old, and very strong, Hybrid Chinas. The third (*Emmeline*), we forget just now to what section it belongs, but any of the old nursery catalogues will tell. Those strong varieties never flower well if they are much pruned, and what pruning they do require, according to Mr. Beaton's plan, should be done late in March, so as to reduce their vigour. Thin the shoots a little, and merely cut off the first few inches of the points of the strong shoots. *Gladioli*.—See what is said of them to-day in another page.

Jasmine—Phloxes—Rose-stocks (*An Original Subscriber*).—"1st. What is the best time and manner of pruning white and yellow Jasmine remaining upon a house? Do the young shoots grow better for not being nailed very near their tops? 2nd. Best treatment of Phloxes, white and purple, after flowering; cut down and left, or moved? Stalks burnt make good stuff for potting purposes? 3rd. In planting Stocks in November, for budding Roses upon in grass lawns, is it better to leave a small circle round them unturfed or not? If it is, could the space be properly used for Verbenas in summer? Had the Stock best be put in with a ball of its native earth, or should the roots be pruned and shook clean; are its branches immediately to be pruned close, or should that be done while the brier is still growing in the hedge?" We insert your letter entire, with answers, both for your own private use, and for letting our readers see an excellent specimen of how letters *should* be written for editorial consideration. 1st. For weak *Jasmines*, the end of October is the best time to prune; for very strong ones, the beginning of April is best. Close pruning is best for them, as it is for all such climbers as flower on the current season's growth. The young shoots will look more graceful hanging out a little from the wall, and will flower just as well as if closely trained. 2nd. The best way is to let *Phloxes* alone until their leaves die off naturally, or by the frost, then the dry stalks would help to burn or char garden refuse, or be charred, which would be better "stuff" than their ashes. 3rd. It is better to leave an open space round *rose stocks* for the first few years, and the open space may be used for Verbenas, as you suggest; but you must make good what food they consume, otherwise the roses are robbed in open day. No native soil with rose stocks and their roots, if long and large, must be cut to within a foot of the stock, and if it were convenient they ought to be pruned now. But whoever thinks of doing that!!

Tropæolums for Conservatory (*W. X. W.*).—*Tropæolum Lobbianum* would answer in one of your tubs, and would mix with *T. pentaphyllum* at the top of the house; and when the latter was done flowering *Lobbianum* would come in to succeed it. We cannot think of another climber suitable to plant with either of these, or, indeed, with any Tropæolum in-doors, as they grow too fast for others, and would soon smother them to death. We have seen *Lophospermum* trained horizontally on a wall to cover the naked spaces left by other climbers, and it answered very well indeed up to any height that was bare.

Stephanotis Floribunda.—*F. W. T.* writes to us thus:—"I have a fine plant of *Stephanotis floribunda* which, in a pot, never gave me any flowers, and did not grow freely. I, all in a hurry, turned it out into a bed, with bottom-heat from tanks; the bed of sandy poor soil, and not regularly made, varying—in parts sandy, in others nearly very stiff. The bed cannot be heated without heating the house, and is not more than 10 to 15 inches deep, so in cold weather it has most bottom-heat. Since the planting out it has made a great growth, and given two bunches of flowers; but it has lost many leaves, and now presents many bare branches, with several yellow leaves." Your Stephanotis is, indeed, in an awkward position; the soil is too poor for it, which with bottom-heat caused the roots to spread fast; and as soon as they reach the tanks, how do you mean to save them from being stewed to death? You cannot receive the proper effects of the tanks till the water in them is 120° at the least—heat enough to kill any root in contact with it; by all means remove the plant before you apply heat for the winter. You might cover a space of two feet or more in width across the end of the tank with boards; lay a strong rich compost over the board, and plant the Stephanotis in that with safety; indeed, that way it would surprise you in two years; and, as it flowers on the young wood made the same season, it should be pruned close in winter.

Dahlias (*T. Phillips*).—Descriptive lists of these, and other superior florists' flowers of the season, will appear in a short time.

Strawberries on Fruit Border (*Mrs. Charles Brown*).—Anything planted on a fruit border is in some degree injurious to the fruit-trees, but strawberries and other strong feeding plants are especially injurious. Nevertheless, many fruit-tree borders are so planted; and, if you do the same, the strawberries will do less hurt close to the stems of the trees than if planted six feet from them.

Heading-down Laurels (*Ibid*).—The best time for doing this is just before they begin growing in the spring.

Recipes (*J. Dawson*).—We cannot give you any of the recipes you require. *Toad-stools*, however large in quantity, will give you very little manure in bulk. What they do yield is rich. Mix them with salt, and cover them with earth. The mixture will make a good compost for your kitchen-garden.

Wood-work of Greenhouse (*Novice*).—It is quite impossible for us to give estimates.

Bass's Pale Ale (*An Amateur*).—Can any of our readers give "directions that can be relied on" for brewing this. Do not wean the *colt* until the spring. Cochineal, or Brazil Wood-chips, will give rhubarb wine a red colour; but you must try a little to ascertain the quantity required. Ten plants of rhubarb will yield you 60 lbs. of stalk at a cutting. You must not "mow" (!) the stalks down; pull off the outside ones only. Many varieties of rhubarb continue red when old. The *Cottagers' Hive* is twelve inches in diameter and nine inches deep, inside measure. There is no hoop round the bottom. It is the same diameter throughout.

Kidney Beans (*D. Walker*).—Yours are very like the *Dwarf Early Cluster*; but the seeds of this are rather darker.

Calendars (*W. Morett*).—Thanks for the trouble you have taken, and if any copies of No. 104, page 410, have the Calendars headed "September," they are wrong, and October should be substituted.

Cabbage-seed Destroyed by Insects (*R. C.*).—If the insect is really "similar to the mite in cheese," you cannot have thoroughly dried you seed; it has consequently decayed, and then mites come to feast upon it. Are you sure that it is not a weevil like that at page 347 of last volume? Heat your seeds to 140° for a few minutes; it will kill the insects without injuring the seeds.

WEST INDIA SEEDS (*J. W., M. F.*).—These, and the yams, are of no value, especially as you have only a greenhouse. You could not grow anything from them.

GOOSEBERRIES (*O. F.*).—You will find a list suited to your wants at page 391 of last volume. Of *currants*, the best *black* is the *Black Naples*; of *reds*, *Knight's Large* and *Knight's Sweet*; of *whites*, the *Dutch White*. We cannot name nurserymen.

KITCHEN-GARDEN (*C. M. J.*).—You say, "From the end of next November until next June I shall be unable to bestow much care on the garden, and I wish to prepare it accordingly." Plant it *now* with potatoes and cabbages. They will only require hoeing occasionally. The cabbages will supply you with heads and sprouts through the spring and early summer, and the potatoes, if you plant Ash-leaved Kidneys, will be ready in June.

HEN COOP (*R. H. B.*).—A good size for the coop depicted at page 192 of last volume is four feet long, three feet wide, two feet high in front, slanting down to nine inches high behind. Can you oblige us by stating at which of the seats of the Duke of Sutherland you saw the coop you mention?

MEAD (*Ystrad*).—If made according to Mr. Payne's recipe, the longer it is kept the better it will be. The *elder wine*, for which a recipe is given in the same paper (Aug. 29), will keep for three years without brandy.

PUMPKINS (*J. Derham*).—Neither of those sent by you are the true Himalayah; proving how difficult it is to keep any of the Gourd tribe free from being cross impregnated. The only slightly pear-shaped is nearest the true sort. As to "what use are they?" read what was said in our first volume about making soup from them. It is the cheapest good soup that was ever suggested. Boiled and mashed like turnips, they are also excellent. The Mammoth pumpkin is worthless. Send Mr. Beaton some of your tall blue Larkspur.

HARD WATER FOR GARDEN PURPOSES (*J. M. U.*).—Before you use, let it stand in a tub exposed to the sun and air for a day, and mix with every ten gallons an ounce of sulphate of ammonia.

OXFORD BRAWN.—Take the head of a young porker, lay it, after being split, in soak for 24 hours in salt and water; rub it well with common salt and a quarter of an ounce of saltpetre and a quarter of a pound of moist sugar; let it lie in the salting-trough three days; wash it well, and put it on to boil until the meat will come readily from the bones; cut up the meat into small pieces; season to your taste; put it all into a *brawn tin*, or any earthenware vessel with a flat bottom will answer as well; the tongue should be placed in the middle *upright*. It is much improved if four or five tongues can be had instead of one. When cold, turn it out.—*Mary W.*

BEES COLLECTING HONEY-DEW.—*P. V. M. F.* writes as follows:—"Can Mr. Payne, or any of your readers, inform me whether they have ever actually *seen* bees collecting honey-dew? In the whole three years of my experience as a bee-keeper, I must confess myself never to have been eye-witness to this fact; and I am bound to say, that I am wholly incredulous as to what is called *honey-dew*, whether resulting from the secretions of *aphids* or the *perspiration of leaves* being collected by bees, except, perhaps, in *very bad* seasons when flowers yield little or no honey. I have *heard* the busy hum of bees, of which Dr. Bevan speaks, among the foliage of the lime or linden tree, but on close inspection, though the leaves may have been profusely covered with the sweet secretion *called* honey-dew, I have never detected *one* of the many varieties of the genus bee which throng the *blossoms* of the lime employed in gathering this glutinous liquid. If by chance one bee has alighted on a leaf, and thrust out its proboscis for a moment, it has been only for a moment, and it has flown off instantly, as if disgusted. I may mention that I observed oaks, beeches, elms, and a variety of other trees, covered with this dew, but in not a single instance have I detected a bee appropriating it. About the leaves of a climbing rose that was greviously affected with blight this summer, I observed several queen wasps indulging themselves, and occasionally a bee settled on its leaves, but I never observed it suck the liquid, nor has any body, with whom I am acquainted, been able to give me any certain information on the subject, though *all profess to believe in honey-dew*." We shall be glad of answers to this. We have seen bees apparently collecting honey-dew from filberts severely affected with it last year.

GRAPES CRACKING (*M. D. Y.*).—The cracking of fruits, whether of vines, melons, or pears, is generally caused by the want of a uniformly moderate amount of moisture in the soil. We think it probable that some mulching applied during any dry period when the grapes are about completing their first swelling, and this well watered on, may probably stay the cracking. If, however, you can prove that stagnated moisture is the cause, the remedy is obvious—thorough drain the subsoil, and raise the roots. Your naming "light gravelly soil," however, inclines us to the former opinion. You surely have got a wrong sort; probably a Black Frontignan or a West's St. Peter's. We would graft a Muscadine and a Hambro' or two next May on your tree.

FRUIT FOR EAST WORCESTERSHIRE (*J. M.*).—Your aspect being rather inferior, we dare not suggest tender fruits. For *pears*, we would take one Jargonnelle, one Dunmore, one Maria Louise, one Winter Neilis, one Glout Morceau, one Josephine de Malines. In *plums*, you may take one Greengage and one Golden Drop. Do not improve all the old elm soil in common; make stations with your first soil and mellowed pond mud.

CUCUMBERS IN WINTER (*Clericus*).—Your gardener supplies your table with cucumbers from the rafters or trellis of a stove, from June to September, and he can do so with an ordinary hotbed, with much less trouble to himself, even if he begins in the middle or end of March. The frame may be taken away entirely the beginning of June; and should any roots of the cucumbers be visible round where the frame stood, let them be covered up with a little earth and nothing more will be needed but a little water now and then; stopping and pegging down occasionally. The frame towards the middle of August may be employed again upon a little bottom-heat for raising either seedlings or cuttings of cucumbers for winter growth, so as to be provided with some good stocky plants to plant out in your stove, either in large pots or boxes towards the middle or end of September, to run up the trellis under the glass, which will supply your table during the winter and early spring months. The *Syon House* variety is considered the best for winter growth. If you look to page 38, of vol. iv., you will see Mr. Errington's plan of a cucumber stove. He will write upon the winter culture.

PIG-STYE (*A Constant Reader*).—We cannot give estimates. Get two carpenters to send you in estimates and plans, and take that which you think cheapest and best.

CUTTING-BACK PORTUGAL LAURELS (*Eugenia*).—About next April, a little earlier or a little later, you may cut back your Portugal Laurel, being guided by the commencement of its growth. Cut back just as it begins to grow.

PLANTING MUSHROOMS IN PASTURE (*A Farmer and Gardener*).—It is not improbable that if in April or May you were to insert fragments of spawn in the soil beneath the turf, that during the summer the spawn might spread, and increase your produce in the autumn. Try the experiment and let us know the result.

EARLY VARIETIES OF POTATO (*A Country Curate*).—If you refer to Mr. Duncan Hair's advertisement in our last number, you will see where you can obtain *Martin's Early Seedling*; and for *Rylott's Flour Ball* apply to Mr. Turner, Neepsend, Sheffield. Cold, wet, heavy loam will not grow potatoes of the best flavour at any time, but we should not hesitate to plant there early in November. We know your district thoroughly, and could tell anecdotes of the Wigborough, Tolshunt Darcy, and Mersea cultivators, that would make you laugh, until the echo reverberated from Layer Marvey Tower. Your objections to early varieties is not valid, because many early ripeners are among our best keeping potatoes. We never grow a late ripening sort, yet we have potatoes until the new ones come again.

DAMSON WINE (*An Old Subscriber*).—Can any one of our readers furnish a recipe for this.

PETUNIAS FROM SEED (*T. M. W.*).—Read the paragraph again. We say, "seedling petunias do never improve in shape or colour by cultivation." Nor do they; if they are bad at first they remain bad.

BLUE LARKSPUR (*H. K.*).—The party to whom you sent in a letter says, "Please to say for me, many, many thanks for having thought of me in your affliction. I, too, have been through the same furnace, and can say, with gratitude, that it is good for us that we have been in trouble." Thanks also for the note about *Couve Tronchuda*, which we will print.

MOSSY FORMATION ON SWEET BRIER (*B. White*).—This is very common, as well as on the Dog rose and other roses. It is caused by a Gall fly (*Rhodites Rosæ*) depositing her eggs in a bud, and the wounds caused by the grubs, each inhabiting its own cell within, produces, in a mode unaccounted for, the mossy ball known as the *Rose Bedeguar* which was once used in medicine.

CHARRED RUBBISH (*A. C., Hereford*).—This put alone upon your "stiff soil" will be highly beneficial. If you are about to plant cabbages on the part manured with it, pour a few gallons of gas ammoniacal liquor over it just before spreading and digging,—say a gallon of the liquor to every two bushels of the charred rubbish.

DISFIGURED WALL (*One Constant Reader*).—Can any of our readers say how a wall can be rendered of a uniform colour, suitable for a rose garden, that is now disfigured by the whitewash where an outbuilding formerly stood?

MUSCATEL GRAPE (*B. C.*).—The Grizzly, White, and Black Frontignans are all of the Muscatel class. They are called Muscateller in Germany. You can obtain them of any respectable nurseryman. *Strawberries* forced, and then turned out into a border trimmed and watered in dry weather, often produce a crop of fruit in autumn. All flowers are bad on *a vine border*; see what we have said to-day about strawberries on a fruit border; the same observations apply to your case.

WORK ON FARMING (*B. M. J.*).—Stephens's *Book of The Farm* will suit. Read also Cobbett's *Cottage Economy*.

NAMES OF PLANTS (*Carrig Cathol*).—The little blue annual (1) is *Brachycome iberidifolia*. 2. The mere tip of a shoot! we cannot detect. Send us a flower. (*G. C. S.*).—Your ferns, 1, 12, and 13, are *Polypodium vulgare*. 2. *Pteris hastata*. 3 and 4. *Scolopendrium officinarum*. 5. *Asplenium adiantum nigrum*. 6 and 10. *Aspidium aculeatum*. 7, 9, and 11. *Aspidium Filix-mas*. 8. *Asplenium trichomanes*. 14. *Adiantum cuneatum*. Some one, whose letter we have mislaid, has sent us *a single specimen of a fern*; it is *Asplenium adiantum nigrum*, or Black Spleenwort.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 17—22, 1850.	WEATHER NEAR LONDON IN 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
17	Tu	Etheldreda. Dogwood red.	29.955—29.888	66—62	S.	0.02	29 a. 6	2 a. 5	1 56	12	14 31	290
18	F	St. Luke. Lime stript.	30.164—30.190	67—44	S.	—	31	0	2 2	13	14 43	291
19	S	Elder leaves fall.	30.060—29.944	59—46	S.	—	32	1v	4 0	14	14 54	292
20	Sun	21 Sunday after Trinity.	29.903—29.854	65—48	W.	0.13	34	56	5 18	15	15 5	293
21	M	Sun's declin. 10° 41′ s. Walnut stript.	29.934—29.769	57—36	W.	0.06	36	54	rises.	☺	15 14	294
22	Tu	Privet berries ripe.	30.071—30.053	59—51	S.W.	—	38	52	0a. 5	17	15 24	295
23	W	Golden Plover comes.	30.124—30.058	63—50	S.W.	—	39	50	6 37	18	15 32	296

On the 25th of October, 1822, died James Sowerby, at his residence near the Asylum, Lambeth, in the sixty-sixth year of his age—a man whose memory will survive as long as taste and science delight in English Botany. Mr. Sowerby was, in his early years, a teacher of drawing and a portrait painter. In the first of these employments he was required especially to instruct in the graceful and difficult accomplishment of flower painting, and his skill in this soon attracted the notice of contemporary botanists. Mr. Sowerby's practice as a miniature painter aided him to attain excellence in delineating the portraits of plants, for success in both depends equally upon delicacy of touch and a happy appreciation of minute characteristics. Sir James Edward Smith, the President of the Linnæan Society, employed him to illustrate some of his works, and this confirmed Mr. Sowerby's resolution to enter upon that department of art for the illustration of science in which he subsequently became so eminent. His first work on the subject was published in 1789, entitled, *A Botanical Drawing Book, or an easy introduction to drawing flowers according to Nature*, a volume which we strongly recommend to all our readers who have a propensity to flower painting; for we can assure them that one of the greatest trials the politeness of a man of science has to endure, is the inspection of pictures which certainly are not infractions of the second commandment—being like nothing on this earth, nor in the waters under the earth. To pourtray the petals, leaves and stems of a plant, is to please the eye only; but to copy also correctly the parts essential to be known in arranging it scientifically adds to its beauty, and is to render the same picture more valuable, because useful as a botanical illustration. In 1791 Mr. Sowerby published *The Florist's Delight*, being portraits of flowers, with botanical descriptions; this, however, did not meet with encouragement; and in 1797 he commenced publishing in parts, and in 1803 completed in three volumes folio, his *Figures of English Fungi, or Mushrooms*, accompanied by botanical descriptions. During this time, and throughout the remainder of his life, he was employed very extensively by other authors to furnish drawings to illustrate their works, and we may remark that his graphic skill was employed upon minerals as well as upon plants. His great work, however, is *English Botany*, which extended to thirty-six volumes, containing 2592 coloured figures of native plants, the descriptions of which are from the pen of Sir. J. E. Smith, and which is far superior to any other work hitherto published illustrative of the British Flora. It has been well observed of periodical works like this, that they serve as immediate and imperishable records of species which never afterwards lose a place in systems of natural history, while they remain as standards of reference, and lighten the work for future labourers. We believe that many a tolerable botanist and still more collectors have been made by these works. We so think because we know that many a mind delighting in knowledge is rendered ardent in the attempt to gather together illustrations of nature, when they have the ready means of acquiring their name, history and properties. It is not much above fifty years, says the author we have alluded to, since a work of this kind appeared among us; and the diffusion of a taste for the study of nature has, to our certain knowledge, at least kept pace with that appearance. Formerly, the rarest plant bloomed for its master alone, but now no sooner does a blossom expand than its portrait is distributed not only over this country, but in a short period reaches the abode of every botanist and cultivator of choice plants. The reference to a drawing enables the inhabitant of Petersburgh and New York to acquire the plant he requires from a nurseryman in London, while formerly a name without an illustration had long proved a source of confusion and imposition. If we refer back even only to the early volumes of the *Botanical Magazine*, and compare their portraits of plants with those now published in the *Gardeners' Magazine of Botany*—one of the most beautifully illustrated periodicals ever published—we shall thence learn to appreciate the progress made in this department of the fine arts—a progress mainly promoted by Mr. Sowerby. The lesson he taught had an influence not confined to Europe; and the remembrance of the pleasing impression still survives which was made upon us when we witnessed the native artists copying flowers for Dr. Wallich at the Botanical Garden of Calcutta. The vividness of their colouring, and their minute accuracy, were lessons which might be regarded advantageously by all flower painters.

The even tenour of the days of a man devoted to science and the fine arts rarely offers salient points for the biographer, and Mr. Sowerby was not one of the rare exceptions. He was a Fellow of the Linnæan and Geological Societies; collected a museum rich in specimens connected with their pursuits, and was worthily liberal in throwing open its door to the student. Men like him rarely die wealthy; but, whether he was an exception or not, we hope that his family will find an extensive sale for the *English Botany*, which they are reissuing at a price much below that at which it was originally published.

Meteorology of the Week.—From observations made at Chiswick during the last twenty-three years, the average highest and lowest temperatures of these days are 58.3° and 41.2°, respectively. The greatest heat, 72°, occurred in several years; and greatest cold, 29°, on the 21st in 1842. On 81 days rain fell, and 80 days were fine.

Insects.—A correspondent on the coast of Hampshire having complained that "all through the summer the buds and branches of his out-door grapes have been disfigured by a caterpillar and its web," we applied for specimens, but having failed in obtaining them, we now publish a description from Köllar of the *Cochylis* or *Tortrix vitisana*, or Vine Tortrix, in the hope that if this is the insect some of our readers may recognise it, and send us specimens of the infected vine shoots, and the caterpillars, for we are not aware of its having been noticed in England, though it often does much injury to the vines in Germany and France.

4, Male Moth; 4 *a*, Female; 4 *b*, Caterpillar; 4 *c*, Eggs; 4 *d* and 4 *e*, Chrysalis.

If the vines in gardens are examined in April and May, this moth will be seen sitting on the branches; it is most readily observed if the branch is beaten with a stick, when the insect flies out, and soon settles on it again. The female at that season lays her eggs singly on the twigs or buds of the vine, from which the young are hatched at the time when the blossom-buds are unfolded. These caterpillars fasten several blossom-buds together by means of whitish threads, and eat off the inner parts of the blossoms. When they have finished one part of the bunch of blossoms they proceed to another part, and do the same till the whole bunch is as if covered by a spider's web. The longer the blossom-buds remain small, the greater number of them will be required for the food of the caterpillar; therefore, the devastations of this insect will be most felt in cold wet springs. Instances have occurred of trellises, though rich in blossom, not having produced a single ripe bunch of grapes, all having fallen a prey to these caterpillars.

When fully grown, the little caterpillar measures three or four lines, is dirty green, and beset with whitish minute warts, from which arise stiff hairs; the head and first segment of the body are yellowish brown, the six fore-feet blackish, and the others the same colour as the body. They enter the pupa state towards the end of June, and appear as moths twelve days afterwards. Pupation takes place either in the cocoon or in a curled up leaf. The pupa is brown, with rough points.

The moth is three or four lines long, and, with the wings extended, six lines broad. The head is yellowish brown; the antennæ, which are half as long as the whole insect, are black and annulated. The upper wings appear marbled with rust-colour and blueish grey, having two incomplete cross bands of the latter colour, or whitish, in the middle of the first of which, towards the centre, is a dark rusty dot. The second band has several dots and streaks of the same colour, placed irregularly; and a confused whitish mark which springs from four pair of little hooks, on the anterior edge; the space between the innermost pair is very dark. The under wings are white, with brownish veins and snow-white fringes.

The caterpillars of the second generation of this moth appear towards the end of August and beginning of September, from the eggs of the first. These are also found on the bunches of grapes, but they do less damage, as the berries are then of considerable size. The caterpillar penetrates into them, and feeds on their unripe pulp. When a berry is so much consumed that it begins to wither, its caterpillar spins a round, hollow passage, which forms a bridge for its passage into another grape. Four or five grapes are sufficient, in general, for the nourishment of one caterpillar; but in rainy weather the mischief extends to a greater number, because those the caterpillars have begun to devour soon rot, and the infection spreads to those near. The fully grown caterpillar then leaves the bunch of grapes, to undergo pupation either at the root of the vine or in some other suitable place. The pupæ of the second generation remain in this state throughout the winter, and it is not till April of the next year that the moths are developed from them.

RENEWING, from page 4, our consideration of the horticultural uses of CARBONATE OF AMMONIA, we may commence by laying down this general rule:—*Never apply an ammoniacal or other stimulating manure to the roots of plants except when they are growing strongly.* We include all liquid manures within this rule, and to apply such manures to the wounded roots of newly-planted vegetables, or to sickly plants already sinking beneath the ordinary stimulus of light, is so contrary to common sense, to say nothing of universal experience, that it only requires to be pointed out to be appreciated.

We quite agree with Mr. Beaton in his dread of re commending the use of any salt (and carbonate of ammonia is one in chemical classification), because we have witnessed such fatal consequences from their ignorant and thoughtless employment. Thus, we once knew a man who planted his potatoes by aid of the dibble, and who abused us for not explaining that the salt we recommended was not to be put into the holes along with the sets!

All saline manures require to be used with the greatest caution, and in a very diluted, or weakened, form. Thus *carbonate of ammonia* should never be used stronger than half an ounce to a gallon of water. If gas ammoniacal liquor is used, a pint of it to a gallon of water is a good proportion. Thus weakened it is a powerful manure, and may be applied at any time to all growing plants cultivated for their leaves; but to those cultivated for their flowers or fruit, not until after the appearance of the blossom buds.

We need only remind our readers, to enforce the importance of carbonate of ammonia as a manure, that all the dungs they employ are rich, that is, a small quantity is efficacious, just in proportion to the abundance of ammonia they contain. Guano, night soil, fatting pigs' and pigeons' dung, are powerful, and abound in ammonia, just in the order we have enumerated them.

We have seen the carbonate of ammonia employed, greatly to the increase of their vigour and productiveness, upon *cabbages*, *rhubarb*, and *asparagus*. Of its effects on other crops we have the following evidence:—

Mr. Paynter, of Bos Kenna, in Cornwall, has given the result of an experiment made with the water on a piece of *barley* land:—

"A quarter of an acre was taken in the middle of a field of rather close soil in a granite district. The land was of average quality. The gas water was distributed over the quarter acre by a contrivance resembling that of a common watering-cart, and at the rate of about 400 gallons to the acre. About a week before seed-time, the rest of the field was manured in the usual way. The difference both in colour and vigour of the *barley* plant was so strikingly in favour of the part manured by the gas water, that persons passing within view of the field almost invariably came to inquire about the cause. The yield also was superior, as well as the *after pasture*—the field having been laid down with the barley."

The London Horticultural Society instituted experiments upon manures for the improvement of *lawns*, and the conclusion arrived at was extremely in favour of gas liquor, when compared with other manures.—(*Johnson's Gardener's Almanack.*)

The following are the results of experiments made by Mr. Wilson, of Largs (county of Ayr), in 1841, and communicated by him to the Philosophical Society in Glasgow. A piece of three-years-old pasture, of uniform quality, was divided into ten lots of twenty perches each, old Scotch measure, which, being treated as follows, produced respectively the quantities of well-made hay marked opposite each. The value of each application was the same, viz., 5s., or at the rate of £2 per acre. All were applied at the same time, viz., April 15th, and the grass cut and made into hay in July following:—

Lot		Produce per Lot.	Rate per Acre.	Increase per Acre.
		lbs.	lbs.	lbs.
1	Left untouched	420	3360	....
2	2½ barrels of quicklime added	602	4816	1456
3	20 cwt. of lime from Gas Works	651	5208	1848
4	4½ cwt. of wood charcoal powder	665	5320	1960
5	2 bushels of bone-dust	693	5544	2184
6	18 lbs. of nitrate of potash	742	5936	2576
7	20 lbs. of nitrate of soda	784	6272	2912
8	2½ bolls (10 bushels) of soot	819	6552	3192
9	28 lbs. of sulphate of ammonia	874	6776	3416
10	100 galls. of ammoniacal liquor from Gas Works at 5° of Tweeddell's hydrom.	945	7562	4200

Concurrent testimony with this is given by a gentleman residing in Monmouthshire, who says—

"In the beginning of April I watered half a clay-land meadow, of five acres, with ammoniacal liquor, diluted with five times the quantity of clear pond water. In three days, I perceived that all the moss, and many of the finer blades of grass, close to the ground, were destroyed. The bulk of the herbage, however, appeared to be unaffected; but in a week's time there was a decided improvement in the portion manured; and, from that time to this, there has been an increased quantity and a very improved quality of grass. Its colour is darker than the other. Any stock prefer grazing on that side of the meadow. In the last week in May, I mixed one part ammoniacal liquor with ten of liquid manure from an open cesspool, which receives all the rain-water and drainage from my fold and dwelling-house, and watered the half of a second meadow. The effect is extraordinary, the herbage is much improved and thickened, the colour a healthy dark green, and the growth materially accelerated. There is double the quantity as compared with the unmanured portion. The cattle, sheep, and horses, prefer the former. Had my cesspool been a covered one, I think one part to ten would have been too strong; but I am this week building an enclosed tank, and intend making other experiments."—(*Gardener's Chronicle*, 1842 and 1843.)

Nor are these the only witnesses to the same purpose, for Mr. Cotton, of Hildersham Hall, near Cambridge, has also found it highly beneficial to grass; and another gentleman, in Dorsetshire, who tried gas liquor on his meadow, states, that "It was applied in May, and wherever the water-cart passed with the ammoniacal liquor, its course could be traced by the darker green of the grass."

The carbonate of ammonia is also useful to the cultivator in other ways than when applied to the roots of plants. Thus, it offers also to the farmer and the gardener a powerful remedy against one of their greatest enemies, the louse or green-fly (APHIS), which attacks their pea, bean, and other crops so destructively. I have found it equally effective in destroying the black louse (APHIS CERASI), which is occasionally so injurious to the *Morello cherry*. Dr. Lindley states (*Gardener's Chronicle*, 1843, page 477), that it has lately been ascertained by Mr. George Gordon, the Superintendent of the Hardy Department in the Garden of the Horticultural Society, that the ammoniacal liquor of the gas works, diluted with water, is a certain remedy for the green-fly, which has been so unusually abundant during the present year. He has found that although gas water in its undiluted state burns foliage whenever it touches it, yet that plants do not suffer from it when considerably weakened with water.

It appears that when the London gas liquor is mixed

with *ten times its measure of water*, and applied with a syringe to the parts of plants infected with the green-fly, it causes so speedy a destruction of those insects, that the greater part disappear after the first dose, and a second application is sufficient to clear away all the remainder. Upon mentioning this discovery to a person whose garden was four days since in a most deplorable state, from swarms of green-fly, he ordered his gardener to repeat the experiment with gas liquor, weakened with twelve times its measure of water. The following morning, upon looking over the bushes, it was scarcely possible to detect a living individual; the leaves were green and much refreshed by the operation. The syringing was only used twice.

These applications require the greatest circumspection, for if the liquor is in the least too strong it destroys all the leaves. A good plan is to dip a shoot into the liquor before using this, and if the leaves after twenty-four hours are uninjured, then, without fear, the liquor may be applied generally.

Carbonate of ammonia has been recommended to be placed as a stimulant to the plants growing in frames and other glass structures not heated by fermenting dung; and the results are said to be beneficial. A piece the size of a pea introduced occasionally and allowed to melt away of itself is enough. When dung is employed the introduction of ammonia is not necessary, for dung, as the source of heat, gives off ammoniacal fumes during its decomposition. What gardeners call *scorching* the leaves in cucumber and melon frames, as often arises from an excess of those fumes as from excess of heat; and allowing fermenting dung to *sweeten*, is no other than allowing time for the excess of ammonia to be driven off.

THE FRUIT-GARDEN.

Winter Cucumbers.—To well cultivate this much esteemed vegetable through the winter, is certainly one of those horticultural triumphs which cause the production to be the more relished in its use, through the difficulties that have occurred. Moreover, some degree of scientific lore is requisite, and, herein, is a source of much gratification to amateurs, who, in the main, being persons of education, are pretty well able to comprehend the action of heat, light, and moisture, wherein lies the chief pith of the affair.

Some persons, in these progressing times, possess what is termed *a cucumber house;* and, as we once before observed, it would be best for all parties who desire cucumbers continually, to build a house of the kind, which, for an amateur on a moderate scale, need not cost above twenty pounds. Such a house (or pit, if you will) about fifteen feet long, by eight or ten feet wide, would produce more, all the year round, than any ordinary family would consume; and with success in winter, the surplus produce might be so marketed, as soon to repay the original outlay. Nevertheless, as few of our readers will follow this advice, it will be better to address the matter to those who already possess a small stove, and who would fain combine winter cucumber culture with ordinary stove plants, or it may be pines.

Before we proceed to details, it will be well to caution the readers of The Cottage Gardener against proceeding in such a course in badly heated houses. It is quite in vain to attempt winter culture in any house that cannot be made to reach at least 55° during a severe frost—say with an outside thermometer of 20°.

Those who have a house of the proper qualifications, in regard of heat, must next take into consideration the amount of atmospheric moisture they can produce *permanently;* for a mere gush of steam now and then will not suffice. And, lastly, it must be remembered, that although cucumbers will sometimes succeed best in summer with a subdued light, yet, that they cannot have too much during winter; therefore, bright and clean glass is a prime requisite.

Situation.—This must be well thought of, both as regards the cucumbers themselves and the other inmates of the stove. They are generally placed by or over the back wall of a stove; and a very good situation it is; but they should not be placed too near the roof, both on account of the proximity of the ventilating aperture and the danger of blistering or scorching in bright sunshine. If placed very near, the operator is obliged to have recourse to an amount of ventilation which is apt to be very prejudicial, as the cucumber plants are very impatient of cold currents of air in winter; wind, indeed, would probably prove fatal to them, for we may scarcely hope for a mild or soft wind in the winter season.

Where a course of flues runs along the back of the house, the surface of such flues becomes an excellent situation, being indeed the very snuggest portion of the house, and the least liable to capricious extremes. Here, however, care must be taken to interpose some body between the flue and the tubs, boxes or pots, which contain the plants, or they will not succeed: the flue would at times prove much too hot, and the air would be too dry. Some contrivance must be had recourse to, therefore, to create a permanency of atmospheric moisture in the immediate neighbourhood of the boxes or tubs.

Few things are better than deeply panelled earthenware tiles; these in convenient lengths,—say two feet—so as to be readily removed when necessary, and, above all things, panelled at least two clear inches deep,—if three, so much the better—make the thing very complete, and we would, by all means, have them as wide as possible. Indeed, we would have the flue's surface, for its whole length and width, an entire sheet of water when necessary, and this would be during four-fifths of the time at least. Some support must, as before observed, be interposed between the boxes and this water surface, or the soil would indeed become soured; a moderate thickness will suffice, unless the flue be very hot. Whatever this be, means must be taken to prevent the bottom of the boxes ever becoming hotter than 90°; the thickness of the intervening body must, therefore, be ruled by this matter.

As to *mode of training*, that must be in part guided by the conditions of the interior of the house. The cucumber will bear training either upright or horizontally, or a mixture of both; training, therefore, is a subordinate affair.

From the foregoing remarks it will be obvious, that the conditions of heat, light, and atmospheric moisture being secured, all the rest is what may be termed ordinary routine; but it may be well, before coming to the detail of that routine, to offer a few observations on the management of *temperature* during the dull winter months. In the first place, although an old tale, let us remark, that the heat must in all cases, or nearly so, follow the light; that is to say, bear a strict relation to it. Now, there need be no fear on this head as to the stove plants or pines which may be in the same house, for their habits are as near as possible identical in these respects. Again; although the heat should not be allowed to descend below 60° in the day-time in the dark days of December, yet it may not, by any means,

be permitted to ascend above 65° under such circumstances, for what the gardener terms "drawing" will take place (a strange term, which, in common with scores of other gardening technicalities, THE COTTAGE GARDENER'S DICTIONARY will thoroughly explain). Let it, however, be understood, that although so severe a caution is given as to temperature in dull, or rather dark weather of a continuous character, yet no chance must be lost of increasing the temperature very considerably when light intervals occur. Such are the periods when the true secretions are formed out of which the future produce must arise. Even during the winter, when the sky is bright, 75° may be indulged in from ten o'clock A.M. until one o'clock P.M.; and an addition of 5° may be made until three P.M., when the heat should gradually decline to the night standard, which at fire time, say nine P.M., should not on an average exceed 58°, nor sink below 55°.

CULTURE.—We lately had an application, in the form of a query, as to whether cucumbers and melons could be struck now from *cuttings* to bear during the winter. The nature of this inquiry, plainly shows that those who undertake to guide the million, should not take too much for granted on behalf of their readers, a small minority of whom understand these little points as well as our best gardeners, whilst, shall we say, a majority require leading up, step by step, "precept on precept, line on line;" and such, then, be our apology for minute detail. And we would here beg to inform our querist, that it is an established practice amongst gardeners—a practice based on real scientific principles—to have their winter cucumbers well established before the dark days arrive, well knowing that in later periods, although the tissue of the plant may be elongated by mere heat, that consistency of parts and a fruitful habit will not accompany such elongation. An ounce of silver wire, for ought we know, may be made to circumscribe a whole county; but when gathered together and weighed, it is still but an ounce. Now from this, by way of illustration, our readers will see that we mean that a correspondent development of parts, coincident with mere lengthening, is absolutely necessary.

If the winter cucumbers are to be raised *from seed* specially for the purpose, it should be sown in the early part of August; if *cuttings* are to be struck from established plants, the middle or end of August will be soon enough. The usual routine of sowing, propagating, &c., hardly need be mentioned here, as it is so familiar to everybody, whilst there is plenty of summer heat to back the operations. The "tug of war" commences with the latter part of October, when the glooms of November begin already to present themselves. It may be remarked, that cuttings require a more generous mode of treatment than seedlings; the latter are apt to "run to bine" too much, and the former are too apt to produce blossoms before the plants are established. These blossoms must be plucked away as fast as they show themselves, and the plants receive weak liquid-manure occasionally, until they become stout and growing freely. The seedlings, on the other hand, will ramble fast enough, and will require stopping occasionally. By these means, strong plants may be procured ready for their final planting by about the middle of September, when they must be put in their winter quarters. We have been supposing that they have been previously reared in a comfortable frame or pit.

We may now speak of *soil* or compost. It is usual for some who cultivate the cucumber very early in dung beds, to use a considerable portion of bog earth or dark moor soil in the compost; and a good plan it is, for such is a well-known absorber of heat, and presents a mellower surface than most other soils. For those, however, in houses or where fire heat is used, something of a sounder character is necessary, something, indeed, which will not become dry in a fitful way—especially if the plants be confined to boxes or tubs. One half of the soil, therefore, may be sound turfy loam, in which the turf has become mellow with age, and the other half equal parts of coarse leaf mould, half rotten manure, and the boggy soil before alluded to, adding a little sand or charcoal dust.

As the cucumbers grow, they must be *trained* carefully; and the close stopping practised in summer may be omitted for a while, or until the plants have begun to partially cover the space allotted to them, when stopping must again be had recourse to. As soon as any fibres appear on the surface of the soil some mulching may be applied; and half decayed manure, somewhat coarse, will be found very eligible.

Above all things, during their subsequent culture, avoid *insects* of any kind; they will be almost sure to appear. Fumigation must be had recourse to occasionally, indeed, as soon as a single aphis appears; and sulphur must be employed as an antagonist of the red spider. Plenty of atmospheric moisture, however, will be the best guard against the latter pest; and syringing with tepid water should take place about three o'clock on the afternoons of sunny days.

Those who would like to build a small house purposely for the cucumber and melon, may refer to page 38, No. 81, for 1850, of THE COTTAGE GARDENER, where they will find a sketch of one that would answer the amateur in a small way very well. It will be seen that room is highly economised in order to save expense.

R. ERRINGTON.

THE FLOWER-GARDEN.

GLADIOLI.—From some communications which have reached me lately about this family, the three following conclusions may be gathered:—First, that half the young growers of them suppose it necessary for success that the bulbs should be planted in October, at the same time as the *Ixias*, from an idea, I suppose, that all the African species have been imported from where the Ixias come from in the Cape colony, which is far from being the case. *Gladiolus psittacinus* and *oppositiflorus*, or *floribundus*, as it is called in the shops, are not found in the country of the Ixias at all, but far to the east in the neighbourhood of the Natal river. Secondly, that certain kinds refuse to grow well in a soil where the generality of the species are found to succeed; but we are now so well acquainted with them, that we can pronounce with confidence that this disposition has been brought about by cross breeding with old kinds or species which are known to be too delicate for common cultivation in our climate; as, for instance, *G. versicolor*, which is a tempting species for those who are expert at crossing, and like showy colours. *G. recurvus*, also, and *hirsutus* have been crossed from, but both can only weaken the constitution of others having the blood of *cardinalis*, *blandus*, or *carneus* in them; and from these three all the best of the older varieties have sprung. Except for the sake of experiments, few people would grow the old seedlings from *tristis*, *augustus*, and *inflatus*, because, though they are very curious in dull shades, and delicately spotted and speckled, they want the clear white and scarlet for which those from *cardinalis* were and are still highly prized. Thirdly, seedlings of very high merit still keep coming on the stage; some of which are improvements on the older varieties, and some are in a new strain or new style of colouring.

A particular friend, with whom I had formerly conducted exciting cases of cross breeding, sent me a box of Gladioli seedlings the other day, which bear out my third inference to the letter. They were not only beautiful, but three of them were exquisitely so, and in a new

from all I had formerly seen; and I have had as knowledge of what has already been done that us any one. What is to be done with those seed—whether they are to be kept for more experiments, be given out to the trade, or what, I cannot tell; ps they were only sent to set my teeth on edge; ıis I can tell for the consideration of young florists, ny friend, knowing me to be an old practitioner, vould not scruple to take advantage of a "brother with a green horn stuck on his forehead, took the ution to extract the anthers or pollen-bags from all edlings before he packed them. Those of us who the "fancy" can see his reason for this careful- at once; and those who are not in the line it will be gh to explain to them that he took out the pollen ar that the post-office people, or the Suffolk gar- s, should get dusty noses by smelling the new s; just as wicked young gardeners serve a party of ns when they are by themselves: they offer a bunch nge flowers to be smelled all round, and whoever ons to get most pollen on the nose, is as sure to get married as I am writing this letter.

have spring wheat, winter beans, early and late ges, and, indeed, almost early and late every thing e grow, and among the rest, early and late Gladioli, to be planted now, some next month, and some not ebruary, March, April, and even to the first and d week in May, so that we can plant for six or seven hs and now have flowers from June to November, like the roses; and both the rose and the Sword Gladioli) have been brought out in that fashion by resent race of cross breeders, and yet we are found with at times for explaining our ways of working to ıe world, or for explaining our views but in a , or according to one rule; as if limits could be set r views and operations. It was only the other day I was called a Michaelmas goose for so doing, *spalpeen* using one of Peter Pindar's razors. Five- wenty years ago we had hardly a rose to bloom in utumn, and not a single Gladiolus that would r much later than June, if it was planted at the time in October. Since then, cross breeders, by se of the *China* rose and the *Isle de Bourbon* rose, given us roses which flower till Christmas; and by kilful application of the pollen of *Gladiolus oppo- rus* and *psittacinus*, since 1830, have done the same the Sword lilies, for we have some of them yet in n; and my friend with the box of seedlings said in tter he is confident of obtaining seedlings of this y which will flower on to December, which is better even than that about his improved shapes and rs.

re-and-twenty years since, after Dr. Herbert had leted a circle with cross-bred Gladioli, and could go rther with them for want of newer species, he gave ection of his best seedlings, amounting to twenty- varieties, to a London nurseryman—Mr. Tate, of ne-street,—and by 1830 they were in the hands of growers, and sold out, as *Herbert's Gladioli*, with- ny particular names. Some bought half a dozen out of this collection, some a dozen, and others the e set. I had them all by the spring of 1831, and red 20 of them that season, and crossed them, as y others did, not knowing that they were already in cle, and could only be worked round and round ut the possibility of breaking out of the line; ugh the breeder, with six or twelve sorts, believed ad something new, when he only reproduced one of 4 first given away by Dr. Herbert. I think I heard d, that Mr. Sweet figured one of them—the highest- ured one,—and called it *pulibundus*. At any rate bundus was a favourite flower for some years, but her it was a reproduction, or only the original from Herbert's seedlings, I cannot tell. Many breeders believed they had new forms and colours, and gave them fancy names, but from one end of the kingdom to the other end not one single variation could be met with out of Dr. Herbert's class of seedlings. For more than 15 years Dr. Herbert gave up crossing them altogether. He had his collection in the open borders at Spofforth for 20 years, winter and summer, and the plants and flowers increased in size considerably, owing to their being not disturbed. The bulbs got so clustered to gether, and were so well drained by the remains of the old bulbs, that they could stand against any amount of rain or wet without injury; and all the protection he gave them was to gather dead leaves over the beds before winter, and to uncover them by the end of March. He had them in good yellow loam without any mixtures, and he had some in peat and loam, but those in the peat, or in any light sandy soil, would not bear a very hot dry summer half so well as the same kinds in his yellow loam. What became of this collection after his death I never heard.

Dr. Herbert was the first, in 1831 and 1832, to see how desirable it would be to have a new race of seedlings from the best of the older sorts crossed with the *then* new *psittacinus* and *oppositiflorus*, to get late flowering varieties; but then there were many breeders in the same field, some of whom appeared before the *public* sooner than he did as the successful raisers of a new race. Now, it is from the working of these two races—Dr. Herbert's old sorts and the newer ones by *psittacinus* and *oppositiflorus*—that people get puzzled about the right time to plant the bulbs. Every one of the *old* collection flowered in May and June, and had to be planted in October, but *psittacinus* and *oppositiflorus*, from the south-east of Africa, have a different season of growth from the Cape colony ones, and with us they do not require to be planted before February; and they may safely be kept dry to the beginning of May, if they are wanted to flower late in the autumn; therefore, the fine crosses between these two and the best of the old seedlings or the old species, as *cardinalis*, take after one parent or another according as the parents were used as fathers or as mothers to the new race; and since then they have been crossed and recrossed so much that the most skilful of us can only give an approximate guess to what side any new Gladiolus belongs, and therefore may be put out as to the right time of planting the bulbs. Indeed, I should not risk much, if I were to say that I would eat every number of THE COTTAGE GARDENER for twelve months, if a single individual could be found in England, Ireland, or Scotland, who could tell from any outward signs in a growing Gladiolus what would be the best or proper time to plant the bulbs, even with a bushel of dry bulbs of different sorts before him, from June to the middle of September. Mr. Groom himself, whose little finger knows more about these things than all the gardeners in England put together, could not tell what was really the time to plant out single bulbs out of the whole bushel; so that the question about the proper or improper times of planting these bulbs may be considered as finally settled, as far as THE COTTAGE GARDENER is concerned, for this generation. Nevertheless, after the middle or end of September, an unmistakeable sign will be given by the bulbs themselves, so that any one can judge of the planting time without asking people at a distance, like us; and *that sign is the sprouting of the roots at the bottom of the bulb*. Ixias, hyacinths, narcissuses, tulips, and the like, show this sign at the proper time in the drawers or bags in the seed-shop, and so will the Gladioli. But it is not necessary to put a bulb to this trial in a dry cool room. If any one were to send me six bulbs of six different varieties of Gladiolus to-morrow, and I wished to prolong their season of flowering next summer without injuring the bulbs, I should test them artificially after this fashion:—

I would take a handful of green moss, dip it in a bucket of water, and lay the six bulbs—crowns uppermost—on the damp moss in a cool room, and in less than ten days those of them that need to be planted in the autumn would begin to root, and those I would plant at once; but those that did not produce roots I would put by till the spring. But after all, reserving dry bulbs of Gladioli after this month is only a matter of convenience. Every one of them that is ripe and dry now may be as safely planted at once as at any time in the spring, if the beds or borders are properly prepared for them; and, with the exception of a few of the old Cape species, which are now not considered worth growing but by the curious, the whole race prefer a deep rich sandy loam, such as the hyacinth delights in, free from stagnant water at the bottom, and from recent manures of any description. But when they begin to show stems for flowering in summer, they delight in large doses of weak liquid-manure, say once a week, all the time they are in bloom. In other words, give them the exact treatment you would to a bed of hyacinths, and they will flourish. I have said already, that I believe hyacinths need not be removed from a bed that is thoroughly made up to suit them for half a life-time, unless for the sake of convenience, and it is just so with Gladioli; besides we have the testimony of Dr. Herbert, that large patches of them were in his garden left undisturbed for more than 30 years. He wrote in 1837, that they had been then standing for more than 20 years, and they were not disturbed until the sale of his bulbs took place after his death.

And now for a parting word to breeders of Gladioli. I have kept a constant look out for all the improvements in this family since 1830; and I have had "a finger in the pie" myself from that time down to 1847; and unless a new wild species should cast up, having a very distinct character from all we now possess to tempt me into the field again, it is very likely I shall never cross another Gladiolus. My parting advice, therefore, has reference only to the good of the family with whom I have for years spent many a pleasant evening, and to whom I have every reason to wish a happy and progressive rise in the world of fashion. The worst that their enemies—if ever they had any—could say against this family was, that they never dressed too smart, as too many do now-a-days who cannot trace back their ancestry to a brilliant *Cardinal*, as they could do at any time. This brilliant Cardinal, as most of us know, was the first founder of this family of swordsmen, and to this day has kept up his character of being the best dressed gentleman of the race. His regimentals—true English like—are always of the best scarlet and white. Now, my parting advice is, that the style of growth and the colouring of *Gladiolus cardinalis* be infused into the descendants of *oppositiflorus* and *psittacinus*—of which *ramosus* and *gandavensis* are the types—by crossing the best of the new seedlings by the pollen of *cardinalis*, and that the strongest plants with the best colours from such a cross be again crossed with the pollen of *cardinalis*, and so on till the yellowness brought in by *psittacinus* be washed into a brighter yellow; and there need be no fears about the scarlet of *cardinalis* ever getting the upper hand. The whole ingenuity of the best cross-breeder that ever lived was spent in vain for more than twenty years endeavouring to stamp that bright scarlet on cross seedlings. The grand error into which the early breeders of the *Pelargonium* had fallen in overlooking the brilliancy of *Pelargonium fulgidum* before the improving race was too much reduced to obtain another parent free from purple, pink, or white, should ever be a warning to others not to commit the same mistake; but the same mistake is now actively in operation among the Gladioli and *the fancy geraniums*. It is mere fudge to any one who is not fortunate or unfortunate enough to be a florist, to say that you have improved a flower by giving it substance and form if you lose brilliant colours, or if you do not improve on original colours which are not already at the utmost limits of the tint. But form and substance need never be sacrificed at the expense of high colour; the only difference is, that to obtain both requires a greater length of time. A cross-breeder shall never produce a better scarlet and white in Gladiolus than is now in *G. cardinalis*, nor a better scarlet than *fulgidium*, nor scarlet and white as in *Ibrahim Pacha*, among the Pelargoniums; but in both families the colours may be better mixed and divided.

Bulbs in General.—All flower-garden bulbs—as the Narcissus tribe, Hyacinth, Tulip, Crocus, Ixia, Watsonia, Lily, Crown Imperial, and Dogstooth violet, which is not a violet, but a pretty little, early, very dwarf bulb—should be planted before the end of this month; and also a first or second crop of *turban* and other common and border *ranunculuses*. Another crop of *turbans* put in a little before Christmas will succeed these by the beginning of next May; and for the middle to the end of May, plant them in February; and the last crop in March, to follow on till after midsummer. After following this plan to the letter, I found the *Turban ranunculus* most useful for the last two or three years for sending up to London as cut flowers, and the bulbous English and Spanish *Iris* came in in June before the *turbans* were done. There is no flower in the garden which answers better for cutting and for sending to a long distance than these bulbous *irises*; the moment the first flower shows the colour in the bud, the whole stalk may be cut; and though sent hundreds of miles by rail, they take no hurt, and will flower in water for ten days, or longer, just as well as if the stalk was not removed at all from the plant. But water is not the best means to keep cut flowers in the height of summer; besides the slopping and messing it causes in the rooms where tidy attendants are not always on the carpet, it drowns, as it were, the ends of the stalks; and unless the ends are cut every other day to keep the pores open and fresh, away go the flowers in the dust-pan. Pure white sand damped through and through with water, with a little common salt in it, is of all other modes I ever tried the best; but I dread the mention of salt. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Cool Greenhouse Plants.—Some months ago, attention was directed to the difference which should exist between the terms greenhouse and conservatory, which are often used synonymously. The propriety of distinguishing between a *cool* and a *warm* greenhouse was also indicated; the former being used chiefly for preserving plants for ultimate effect in spring and summer; the latter for the same purpose, and also slowly growing and blooming plants in winter; the former having an artifical temperature in severe weather of from 35° to 40°, and the latter of from 40° to 45° and 50°. A greenhouse to be used as such in winter, presupposes not only a certain degree of comfort for the plants, but a certain amount of pleasure and enjoyment to its owner. The ecstasy of beholding all your favourites clasped in the iron embrace of the icy king, is rather too exciting to wish you to be participators, unless you want a fair excuse for troubling with a good order your obliging friends, the nurserymen. You may call, then, lustily for Hercules to help you, but will he come? He, and the whole tribe of good genii and beneficent fairies, will only advance to our aid when we take time, thought, and prudence, by the forelock. The gods help those alone who take care to assist themselves.

A greenhouse presupposes, as we have seen, a certain degree of comfort: whether large as a mansion or small as the section of a room, the ideas of house and home are conveyed, and therefore security for the plants, and such comfort for their possessor, that even in winter he may survey them in the worst weather, with head erect, instead of sprawling "on all fours" in a shallow pit, constructed of turf or bricks. Hence all greenhouses, to be used as such in winter, should by means of stoves, flues, hot water, &c., be capable of being heated in severe weather, as from their height it is difficult to cover them effectually, so as to exclude the frost. In small places any regular plan of heating would be a heavy item of expense; but in such houses as that referred to by one of our correspondents, namely, nine feet by six, much might be done by a tarpaulin thrown over the house, with perhaps a layer of mats below it, and placing in it, in very severe weather, several large earthen and stone ware bottles filled with hot water; such gallon and two-gallon bottles being frequently met with in lumber receptacles, testifying to a period when, among respectable people, orders upon their spirit merchants were more frequent than now—thanks so far to the teetotallers!

Without some mode of heating, therefore, a house for plants can scarcely be used as a greenhouse in winter, unless plants almost perfectly hardy be resorted to. The miserable aspect of a tender plant in such circumstances deprives the nursing and coddling of it of its chief interest. Even comparatively tender plants would be safer planted against a conservative wall, where they could be kept dry by such means as glazed calico, because the roots at least would be free from sudden changes, while nothing injures plants in a greenhouse more than having the soil frozen in the pots, and more especially if that should afterwards be suddenly thawed. In all such cases coverings should not only be given, but they should be gradually and carefully withdrawn.

Hence it is no such easy matter to supply, as several of our correspondents desire, a list of hardy and yet good greenhouse plants, that will not require any artificial heat in winter, and yet minister to the interest of the greenhouse then, and furnish, as one of our friends says—"in the summer, at any rate, a few nice things in bloom." Did I recommend things that merely required a little protection, I should be told—"Oh! we can have these things against our walls or in our borders in winter, and in groups in the flower-garden in summer; the greenhouse ought to have something different, or what is the use of it in summer." Did I recommend some of the more common and hardy greenhouse plants, such as Acacias, Cytisus, Melaleucas, &c.—"Oh! I see and meet with those things everywhere." Did I risk upon naming some of the finer Acacias, Gompholobiums, Eriostemons, Chorozemas, Dillwynias, Ericas, Leschenaultias, Pimeleas, Zichyas, &c., then with such accommodation, unless extraordinary care was manifested, complaints loud and deep would be uttered, that I had made them, among their friends, the target against which the old proverb was arrowed—"a fool and his money is soon parted." A prevalent error among many young in gardening is, that provided they can construct any thing in the shape of a greenhouse, attached either to their own residence or placed in a snug cosy corner of the garden, that there, irrespective of all care about heating, they ought to have plants as gay and flourishing in them as where all those means of success exist. Now, lists are fine things in their way, but right ideas and principles upon such matters are far more important. Lists may be forgotten; ideas and principles rightly understood, never. Lists of suitable things to the inexperienced seem the greater boon, because more apparent and perceptible. Ideas opposed to misconception are still a greater good, though they work silently without observation, yet not less surely and powerfully. They are like the continuous drops of water that wear away, almost without observation, the hardest rocks. Error is most surely conquered, not so much by boisterous opposition, as by the gentle insinuations of truth.

Now, in all such greenhouses with no means of heating them—and as covering from frost must be a very awkward affair, endangering the breakage of glass when effected, and ruinous to most greenhouse plants if neglected—we should recommend, first, that by November, the most valuable plants should be removed and stored in turf or brick pits, where covering of any amount may easily be given them, and then the house may either be cleaned out and left empty until March, or kept green by hybrid Rhododendrons, Cytisuses, and late flowering Chrysanthemums. The house would act thus as a growing house and show house for nine months in the year. Or, secondly, consent to forego the ideas of neatness for several months in winter; and, especially in frosty weather, set all your plants on the floor of the house, and by means of hoops, throw mats and other covering upon them to your satisfaction. All, except the tenderest of greenhouse plants, may thus be kept, and in some respects more safely than in cold pits, because when long covered up they will not be so exposed to damp, and all the covering will always be dry, owing to the glass roof above; and whenever the sun striking upon that roof raises the temperature within a few degrees above the freezing point, then the covering may be removed, if it was only for an hour, or less. As neatness is always desirable—as economy is the order of the day, and as even turf pits cannot be raised for nothing—I would, thirdly, recommend all our friends who have small greenhouses, and no means of heating them, to make the same house answer as greenhouse in summer, and a cold pit, or something better than a cold pit in winter; because the plants will not only be preserved, but, unless in the severest weather, easily examined, while neatness will not be interfered with. "And how effect all this?" In an extremely simple manner; but not the less important on that account; because every thing that is truly great, is also truly simple. The most of these small houses are in the shape of an oblong square; one of our friend's houses—whose case is now under consideration—is merely nine feet by six feet. Many, however, may be a few feet longer, and, what is more important, a few feet wider, because then there would be more room. We shall suppose that in these houses there is a stage for showing off the plants in summer; the shelves supported upon sloping rafters, and ranging lengthwise from end to end of the house; not the most artistical, but perhaps the most useful plan in such small houses. Then, if a lean-to, which is most generally the case, you have the back wall as the back alike of your greenhouse and pit; supposing that the ends of your house are partly of glass, then a few inches from it you must have ends made of one-inch board, of the same width, and to rise to the same height, back and front, as the width and height of your stage, with one or several pieces, according as your house is short or long, wide enough to rise to the top of your stage in front; you have thus the skeleton of a cold pit—front, ends, and back, all of which, with the exception of the latter, may be removed in spring, and stored until another season.

The shelves being fixed with screws, could be taken off in a few minutes, and then the supports of the shelves would act as the rafters to your pit. If you had any spare sashes which you used for cucumbers in spring, it would be well so to place the rafters that the sashes would go between them, being supported there by fillets fastened to the side of the rafters. This system would be very useful if you wished to propagate verbenas, petunias, &c., for the flower beds, as one of our friends proposes doing in one of these unheated houses. The plants being placed beneath on the floor, or, if room

permitted, part of them placed upon a temporary platform made of the shelves they formerly stood upon, would thus have the protection of double glass, and air could be given by drawing the sashes down or raising them in front; and the plants could be examined by raising the sash in front, and supporting it upon an instrument, formed by two pieces of wood joined to form an angle, with an iron point at one end, and separated so as to form the base of a triangle at the other. To still farther secure the plants, a cloth covering should be provided, fastened on one side to the back wall, and in front of the pit to a round rod of wood, two inches at least in thickness, and furnished with a wheel for receiving the rope at one end. By pulling this rope, the wheel and rod would revolve until they reached the back of the house, when the rope should be fastened to a staple in front. As the rafters have been cut for the reception of the shelves, three smooth rods, one in the middle, and one at each end, should be fastened over them, that the covering may slide freely. With such a covering, made of stout cloth, sashes over the pit for all the hardier plants may be dispensed with. The covering and uncovering may be effected almost instantly, and the plants may be seen and examined far better than they could be in a cold pit. I am not recommending what circumstances did not force me to try: without any means of artificial heat, without any means of internal protection such as these, which ensures from damp and keeps the protecting medium dry, I cannot hold out great expectations to our friends in winter, as to what they can accomplish in their cold greenhouses. I should not like to guarantee to our friend with his small house the security of his verbenas, geraniums, petunias, &c., for bedding; with the means indicated they may be kept safe.

With less care than is requisite for these bedding-out plants, the following will succeed. The list, though very short, will be too long for some of our friends, but it may suit others. Fancy things will be referred to again. It is best either to have only one or two of a genus, or else cultivate only a few families to succeed each other. Even common things have quite a different appearance when well grown:—

Of the Orange tribes—much loved for the sweetness of their white blossom—for small places, the *Otaheite* is the best; is almost always in bloom during summer, if not allowed to exhaust itself by fruiting. Light rich fibry loam.

Cupressus torulosa and *latifolius*, &c.; yellow. Peat and loam.

Camellia: the old double Red and the double White about the hardiest. Loam, peat, a little sand, and cowdung.

Myrtles: the Broad-leaved Myrtle flowers the most of the summer.

Acacia affinis, armata, falcata, verticillata, yellow. And *grandis* and *olæifolia elegans*, also yellow and new. Soil, peat and loam. *Discolor*, also yellow.

Daphne indica, white; *odora*, pinkish white; *odora rubra*, reddish; *Fortunii*, lilac. The last new; all very sweet. Peat and a little loam.

Diosma ericoides, white small flower, leaves fine scented; *oppositiflora*, white; *rubra*, red. Peat and loam.

Erica Willmoreii, pinkish; *ventricosa*, flesh. *E. coccinea*, scarlet. *E. superba*, scarlet; *tricolor*, reddish-green; *translucens*, red; *suaveolens*, pink; *vestita*, whitish; *vestita coccinea*, scarlet; *Cerinthoides*, dark scarlet; *ampullacea*, whitish-red. Heath soil and sand.

Epacris impressa, red; *rivalis*, white; *campanulæflora*, white; *hyacinthiflora*, white; *grandiflora*, red. Peat and sand.

Azalea indica: the white and purple varieties I have had frosted for weeks out of doors, and yet they survived the newer varieties, such as *variegata, danultiana, Gledstanesii, optima*, &c.; will stand rough treatment, but they will not bloom so early.

Nerium oleander splendens, red. Is a splendid thing in spring and summer; have had it out of doors in 10° of frost, and yet it survived; but, of course, it did not bloom next season.

Rhododendron arboreum, and its varieties. This will do out of doors with a little turf above; but it has nothing of the brilliancy when bloomed under glass from March to June.

Leschenaultia formosa, crimson-red. Heath soil.

Eriostemon: the whole family is desirable, and will do, provided you can give it extra heat after March. Flowers chiefly whitish, red, and lilac.

Then there is the following woody plants:—*Pimelea rosea*, red. *Polygala latifolia*, reddish-purple. *Correæ pulchella*, red. *Eutoxia myrtifolia*, orange. *Anthocercis albicans*, white. *Pultenæa polygalifolia*, yellow. *Melaleuca decussata, pulchella, hypericifolia*, purplish-red. *Illicium floridanum*, purple. Then for succulents, there is the *Halosanthus coccinea*, scarlet. The *Rocheas, Mesembryanthemums, Sempervivums, Aloes, Yuccas*, and, though last, not least, the beautiful *Cereus* and *Epiphyllum*, all of which will be safe if kept dry and just free from frost. For climbers, *Passiflora cærulea*, and *cærulea racemosa, Tacsonia mollissima* and *pinnatistipula* may be used, with more temporary additions of *Lophospermum Hendersonii* and *spectabilis, Cobæa scandens, Maurandias* in varieties, and *Tropæolums* either upon pillars or trellises, and *Thunbergias* in summer for the same purpose. Bulbs there are in plenty for summer blooming; and what, for instance, can be more beautiful than *Oxalis Roucii*, with its large crimson blossoms, and which requires no room in winter, and only to have its roots kept from frost. And then there are many half-hardy herbaceous plants that die down to the surface in winter, and if kept from frost will bloom profusely in the greenhouse, such as *Lobelia splendens* and its congeners; fine spikes of these when seen side by side with *Campanula pyramidalis* will not soon be forgotten. And then there is the whole tribe of tender *annuals, balsams, cockscombs, Thunbergias* and *achimenes*, if there is such a thing as a hotbed to forward them in spring. For years I kept the scaly tubers of the latter buried in the soil in a warm shed.

I must stop; and as a parting word for the present, let me say to our friends with their small houses—Try and do a few things well, instead of cramming your space with things which it is impossible you can grow. If you present a fine specimen, your friends will be delighted; not one in twenty will inquire whether it be new or old.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

ORCHIDS THAT THRIVE BEST ON BLOCKS (*Continued from page* 9).

Oncidium pulchellum (Pretty O.); Demerara and Jamaica. A very lovely species, with leaves very like *O. triquetrum*, only larger. Sepals and petals lilac blush; lip the same colour, except a dash of orange at the base. The flowers are produced on a panicle averaging a foot long, and are so numerous as to give it a curving, drooping character, very elegant and chaste We have frequently sent to its native country for it, but were not fortunate enough to procure any, it being very scarce even there. 10s.

O. tricolor (Three-coloured O.); Jamaica. Sepals and petals yellowish green, marked with red; lip white, streaked with red: a beautiful small species. 10s.

O. triquetrum (Triangular-leaved O.); Jam . . . Sepals,

petals, and lip of a pale greenish yellow, striped with reddish purple. The lip is the largest part of the flower, and is of a triangular shape. It grows freely, and flowers readily every year. 31s 6d.

O. urophyllum (Tail-leaved O.); Brazil and Jamaica. Flowers clear yellow on the upper surface, and white on the lower. There are a few crimson spots on the upper side near the centre. The flowers are produced on long drooping panicles. 21s.

O. uniflorum (One-flowered O.); Brazil. Sepals and petals pale brown, thinly spotted with reddish purple; lip clear yellow, blotched and spotted round the crest of the lip. The flowers are produced on short stems singly, of a good size, and very pretty. Very rare. 84s.

Culture.—The above five orchids are exceedingly interesting plants, forming a small section of this large family, but somewhat difficult to cultivate; yet from their not taking up much room, and being so very pretty—especially *O. pulchellum*, *O. tricolor*, and *O. triquetrum*—they are worthy of a little extra trouble. Place them on blocks without bark, with a very little moss just under the plants, but not actually in contact. Syringe only when there is likely to be sunshine, and in the morning; keep them in a warm moist house, for they are natives of a warm climate, and require more heat and moisture than the Mexican house. As they have no pseudo-bulbs, they must be syringed frequently during proper weather all the year—the only care necessary being to let them become dry towards the afternoon and during the night. They should be hung up within eighteen inches of the glass, so as to receive a great amount of light, which enables them to resist, even when young, the influence of damp. If kept too wet constantly whilst the young shoots are growing, they are apt to damp off; but with the above precautions and care they will thrive and flower satisfactorily. The rest of the *Oncids* that require blocks, described in a former number, do not require such very particular care.

O. crispum is very easy to grow—all that it requires is to be fastened to the block with a little moss, and kept moist during the growing season. Every collection ought to have this fine handsome species in it; its splendid flowers are very attractive.

O. Forbesii, also, is very fine, but rather more difficult to grow. It is nearly lost to the country; but we trust it will shortly be more plentiful, as there is a collector in its native district, we are informed, who knows of quantities of it growing wild; and there is no doubt he will, sooner or later, send over a good batch of this desirable plant.

Phalænopsis amabilis (The lovely moth-like flower); Manilla. This has been rightly named "The Queen of Orchids," and a most lovely queen it is! Every one that has seen it will agree with us, that it is impossible by any description to do justice to its delicacy and beauty. Perhaps the finest plant in cultivation is in the London Horticultural Society's garden at Chiswick. Mr. Fortune, when in China on his first expedition, took a voyage from Shanghae to the Manillas, on purpose to collect a quantity of this plant, and was eminently successful, both in procuring the plants and sending them home in fine condition. The particular plant alluded to above was one for which Mr. Fortune offered a prize to the natives. The prize (two dollars, we believe) was to be given to the native who brought him the largest plant, and the one in question was the prize plant. It is truly a noble specimen, having frequently between twenty and thirty spikes in full flower at once. The flowers are produced on long stems, which in the first instance are terminal, but afterwards are often branched. The weight of the flower causes the stem to droop gracefully; and the flowers are arranged alternately in two rows, sometimes as many as twelve on each stem (in one instance we saw eighteen on one stem). Sepals and petals pure white, and the lip of the same colour, very curiously formed, something like a sharp-pointed boat; the inside is beautifully streaked with rosy pink. Each flower often measures three inches across. The whole flower has much the appearance of a large moth with its wings fully expanded—hence its name. Small plants, £3 3s; large-flowering do., £5 5s.

P. grandiflorus (Large-flowered P.); Java. There is not much difference between this and the preceding species. They may be distinguished by the following marks:—The leaves of the latter are longer and narrower; the sepals and petals are of greater substance, and larger and more compact; the markings on the lip are more vivid in colour, yet with all this it requires an observant eye to distinguish them from each other. Prices the same as the last.

Culture.—The culture of these fine plants is very simple. Being natives of the hottest parts of the globe, they require to be kept constantly in the warmest part of the Indian house. They should be fastened to a log of wood of the least perishable kind, because their roots cling so closely to it, that they do not easily part from it, even with the greatest care. Hence they should not be often moved, but be placed at once upon a log likely to last for at least three years. In fact, rather than tear the roots from a log on which they are firmly fixed we place two smaller ones, one on each side, and so allow the fresh young roots to fix themselves upon them. By so doing the old roots are preserved, and the young ones have an opportunity of obtaining fresh support from the new branches. No moss is required for them. The fine plant at Chiswick, growing on its native log, has no moss near it. The only care requisite, is to give them abundance of moisture, especially during the summer months. When in flower it will not be desirable to syringe the whole plant, as every drop of water upon the flower causes a spot of dark colour, and greatly detracts from its beauty, by defacing that pure white which is its greatest charm. As the plant, even when in flower, requires abundance of moisture, it may be given to it by taking the plant off the hook on which it is suspended, and dipping the log and roots just up to the plant in the tepid water of the cistern. From March to September this operation may be done with the greatest good effect every day, and in the hottest days of summer even twice a day will be beneficial. By this liberal treatment the plants will send forth fine bold dark green flowers, and strong flower stems, with numerous large flowers. We cannot close our remarks upon these beautiful plants without mentioning another good property they possess; namely, lasting a long time in bloom. We alluded to a specimen that had eighteen flowers open at one time on one stem. This plant was *P. grandiflorus*, and was exhibited at the three exhibitions at Chiswick, by Mr. Kinghorn, gardener to the Earl Kilmorey, at Orleans House, Twickenham, in fine condition at each show. This proves its great value as a flower of long continuance; and this is not all, for if the flower spike be cut off close to the place where the first flower made its appearance, the same shoot will break out and flower again in six weeks or two months, thus giving forth its splendid beauty for eight or nine months in the year. Have we not written enough to recommend this queen of orchids to our readers! But we think we hear them say, it is so dear! Now, really, we do not think so. We say to them, as we say to many a customer, save your money, and instead of buying ten species of common orchids for five pounds, lay it out in purchasing one that will always delight you, either by being in flower in regal beauty, or showing buds in progress, and thus giving that pleasing excitement of expectation to see its beauties which is often nearly as much pleasure as the actual fruition of your hopes. Perhaps some may ask, which of the species are we to

buy? We reply, whichever you can get best; that is, the largest plant, for in beauty they are quite equal.

T. Appleby.

FLORISTS' FLOWERS.

We have been riding our hobby horse on orchid growing so hard, that we have not much space left for this almost equally loved part of our labours. Indeed, just now there is but little to do amongst florists' flowers. Frosts are beginning to make havoc with our favourite autumn flower, the *Dahlia*. As soon as its blighting influence has passed over them, cut off the tops and take up the roots instantly, to prevent a too great effusion of sap. Take the precaution to dry them gradually, and store them away where neither wet, frost, nor heat can reach them. Such as are in store pots should have their tops shortened, and be laid on one side to induce rest. Let every plant that requires shelter be removed from the open air into winter quarters in good time. It is better to be a week too soon than one night too late. See the numbers for two or three weeks back, on other parts of this subject.

T. Appleby.

THE KITCHEN-GARDEN.

Cauliflowers.—We must now begin to store these for winter use, and this must be done by pulling up by the roots on a fine afternoon, and whilst they are dry, such as are just turned in; tying them into bunches of four or five together, and then hanging them up in a shed or cellar with the whole of their leaves to them. Continue to prick off young plants until a sufficiency is secured for the next spring cropping.

Chives.—Let these be taken up and potted, placing a few pots in a frame, pit, or house, or any sheltered situation, or the cottager may put them in his window. Several cuttings may be thus obtained from this useful herb during the short days of winter.

Endive should also be placed in frames, pits, or temporary made places, and on sloping banks.

Tarragon and Green Mint.—Those who require these throughout the winter should place a pan of each immediately inside the cucumber pit or frame, or any other situation where heat is to be commanded.

Rhubarb and Sea-kale.—Take up a few strong roots of these occasionally, and place them in a cellar or other convenient place, as previously recommended, for producing a supply in succession.

Tomatoes.—The best fruit should now be selected and hung up singly where they may ripen gradually. Those against walls or fences may be prolonged by covering with mats at night.

Framing Cucumbers should now be sown. Those already growing on will also require some attention, with regard to the application of heat and moisture, which now, that the days are becoming shorter, should be well regulated, so that the plants may not be too much excited, but have a uniform and kindly heat maintained by the judicious application of air. *Water* should also be applied, but, of course, in a tepid state; taking the opportunity of a fine day to apply a liberal soaking all over the soil without wetting the foliage, and taking care on all fine afternoons at shutting-up time also to sprinkle round the frame or inside of the structures close to the edge where the soil is liable to become dry by contact with the linings or hot water pipes. This will secure at all times a healthy humidity, so much needed for securing the health of the plants.

Frame Radishes, Carrots, Late-sown Coss Lettuce, &c., should have the lights placed over them at night, and when rain prevails; at the same time abundance of air should be applied, by tilting the lights, both at back and front, so long as the weather continues mild. To prevent the lights from being removed by wind, a strong staple should be driven in at each end of the pit, frame, or other structure, to which a cord should be fastened ready to be passed over the lights when on. The earth should be stirred carefully amongst all the above named crops, and if too much moisture prevails in the soil about them, or the least inclination is shown of the plants becoming too much drawn up, apply dry dust, by carefully sifting it amongst them.

Routine Work.—Root storing should at this season be performed in a methodical manner—not placing the roots together when wet, or in too large quantities, so as to cause fermentation, which will not only destroy their best qualities but their keeping properties also. Take every opportunity in the freshness of the morning, or the moonlight of the evening, to wheel manure on any spare ground, in readiness for having it thoroughly trenched and ridged up, which should be done as roughly as possible, well intermixing the manure with the top spit of the soil. Where draining is necessary, it should be done at once upon a good substantial principle. All water tubs, also, and surface drains, should be well trimmed and cleared out; and the outlets of all underground or land drains examined and cleared, so as to maintain a free course for the water to pass away, the neglect of which, at the fall of the leaf, often causes complete stoppages to extensive main drains by the accumulation of sediment, where it is not all times easy to discover it. *Herb plantations* should be cleared of decaying stalks, and be top-dressed with well decayed manure, leaf-mould, or vegetable soil. Look to all kinds of *dried herbs* and *flowers*; securely placing them in paper bags, on which their names should be written, and hanging them up in a dry situation.

James Barnes.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

The English cottager is an object of the greatest possible interest in the eyes of all who warmly love their country, and desire its happiness and welfare. In an agricultural country, such as is our own, the labourer is of extreme—intense—importance; and his hands are as necessary to the state, as the heads of its rulers, and the arms of its glittering hosts. Whatever measures tend to oppress the British labourer, directly or indirectly, will in the end prove injurious to our country, because *all classes* must suffer with him. This ought peculiarly to endear him to our hearts, and create an interest in all that concerns him; and the cottages peeping from the trees, or grouped together by the side of the cool stream, or dotted over the face of the open corn districts, should cause a yet deeper feeling than that of admiration in our minds.

The poor are also especial objects of interest to all who seek to love and fear the Lord "with a perfect heart," because His statutes do so strongly set forth our duty to our "poor brother," and threaten with such heavy judgments all who do him wrong. Specific charges were given in the Law of God on this particular point; a blessing was annexed to it; and

one of England's striking and beautiful features, is the abundance of institutions for the poor, headed and aided by the highest and noblest in the land.

The Word of God has declared, that "the poor shall never cease out of the land." Much has been done, and much is, and will be doing, to ameliorate the condition of the poor; it is our bounden duty to strive in every lawful way to make them happy and easy in their humble sphere—to soften as far as possible the trials of poverty and labour—*above all*, to make them "wise unto salvation"—but "the poor shall never cease out of the land;" and every cottage we see — every tattered suppliant by the way-side—every labourer who tills our fields, and digs our gardens, illustrates and sets before our eyes the unchangeable purpose of God.

I was born—we were all born—in the country, and my earliest recollections are associated with a village, close to which our residence stood; our parents were always loved and looked up to by the poor, and we have imbibed from them a fondness for, and an interest in, the humbler classes, that has grown and strengthened with our growth. For the last twenty years we have lived in the midst of a rural and agricultural people, where wages are generally very low, and poverty is consequently great; yet the interest we feel in this rural population—with all the drawbacks incident to human nature—is the stronger, because of its poverty and distress; and we deeply feel from our own want of means to effect real and permanent good, how much might be done in similar situations by those to whom God has committed ten talents, and bestowed the desire to employ them well. A very dear friend, who loves the poor, and whose departure from the neighbourhood was long and deeply mourned by them, has frequently said, "Where I now reside, I have no local interest—the cottagers are all so well off, there is nothing for me to do: I sadly miss the *poor*." Thus there is put into the heart a sympathy, which is as good, as pleasant, and as necessary to the giver, perhaps even more so than to the receiver; and what is our duty becomes an enjoyment, without which we feel a void that even personal blessings cannot fill up. To those who take no interest in the poor—to whom the interior of a cottage is scarcely known—and whose sympathies are unmoved by their simple joys and sorrows, the country seems robbed of half its charms, and the daily routine of life loses half its pleasures.

Human nature is the same in every land, and in every station. The passions of men, the evil heart, the fallen nature display themselves in each and all, only that amongst the poor there is less regard for outward appearances, vices are more openly practised, and they have not the fear of *the world* to keep them in check when the fear of God has no power over them.

In our intercourse with the poor we must not expect to find them faultless, or destitute of evil tempers, unthankful hearts, gross deception often, or ready to hear and do as we would have them in many little ways that we think would be better and more comfortable. We must not expect to find the smooth tongue governed by a smooth heart, or the kindness shown always understood and valued. But we must look around among our own kindred, among our own people, above all, in our own hearts, and see what is found there, where education may be supposed to have done so much, and then we shall go forth better prepared to encounter those among whom we know it has done so little.

There is a good deal of originality among the poor; and often we can perceive such a natural understanding, or the germ of so much talent, as would lead to eminence, if circumstances were such as to encourage it. A friend of our own had taken a lad into his service to work in the garden, groom his pony, and wait at table. He was one of the very dullest, most stupid looking boys I ever saw, and seemed to have scarcely sense or life enough for his undertaking, and he was perpetually in disgrace for want of sharpness and activity. This boy, however, began to show a singular turn for carving. With a bit of bone and an old broken penknife he manufactured a seal for his fellow-servant, and carved her initials upon it. This seal was shown to his mistress, and she immediately ordered one. We all admired it, more, perhaps, from surprise at the artist than from the beauty of the work; but we all ordered seals, of course, directly, and it was surprising to see how quickly practice improved him, and how correctly and delicately the letters and words were carved. He began to make other little articles too, all equally well formed and cleverly done; and we used to give him the handles of our old umbrellas, as being rather better material than common bones. But there was no one to foster more usefully his genius. He married and settled down into a common labourer, although for a long time his cottage window displayed bone spoons, wooden butter-prints, &c., which he executed at his leisure hours, and most ingeniously they were done. Then his wife died, his infant died, and with one little child he left the village, and went I know not whither. It may be that even yet his native talent may burst through all impediments—a friend may be raised up to mark and assist the genius; and this poor boy may rise to be high in a profession very different to that in which his humble birth had placed him.

In England there is no bar before a rising genius. Money, and friends, and patronage are needed, but there is no legal, no social hindrance to the lowest peasant, if his talent carries him on. In many surprising instances God has wrought for a youth with scarcely any apparent human aid. Every day we hear or read of some interesting case of this kind; and in how many persons in distinguished posts and professions have we found the son of the tradesman, the mechanic, and even of the humble labourer.

There is a never failing interest in "the short and simple annals of the poor."

GRASS-PLOT IRRIGATION.

By Cuthbert W. Johnson, Esq., F.R.S.

The good effect of house sewage irrigation in the growth of grass has long been known to be very considerable. For the purpose of testing the various little points of detail which might arise when carried on on a small scale, by small landholders, I laid down the turf on a plot of grass in my garden, near Croydon, in February and March, 1850. This was only 16 yards long, and 13 yards broad. The bed, therefore, contains only about 208 square yards, and is surrounded by a raised border of turf about two inches high, to prevent the escape of the irrigating sewage; and for a similar purpose the bed is divided by two turfed ridges of about the same size into three compartments. These ridges would have been repeated *crosswise*, so as to divide the bed into nine compartments (to suit the size of our beds to the bulk of our sewage), had we not wished to avoid impeding the action of the scythe, the whole produce being intended for the soiling of a pony. Soon after the bed was formed, earthenware pipes of about two inches bore were laid down, extending from a tank constructed on some higher ground than the grass-plot, the contents of which, whenever the tank is sufficiently filled, is allowed (by the lifting of a plug) to flow on to the grass—the orifice of the pipe from whence the sewage issues being about eight or nine inches above the level of the turf. From this pipe the sewage is distributed, by means of an open wooden trough, to any part of the plot that is just partly cleared. Our practice has been to cut sufficient grass for two days' consumption, and then immediately the grass is removed, to direct on to the cleared space all the sewage which has accumulated since the last cutting, occasionally adding to its bulk by allowing some pump water to flow for a minute or two from the sink through the house-pipe drain into the tank. By this plan the collateral advantage has arisen that the sewer pipe, tank, and delivery pipe, as well as the house sewage itself, by being so constantly cleansed or removed has not time to undergo putrefaction. The plan, therefore, is carried out (generally the first thing in the morning) without any of the inmates or visitors to the house being aware that such a manuring is systematically going on. The result, in fact, shows that the noxious effluvia from sewers arises, not as a necessary result of the matter conveyed in them, but from their ill construction, and the barbarous practice of allowing the long accumulating contents of cesspools and choked drains to flow into them.

The general result of this little experiment has been such as to induce me to confidently and warmly recommend the repetition of the plan to such of my readers who are so situated that the contents of their house tanks can be directed by its own gravity on to a conveniently placed grass-

plot. The herbage produced by this mode is not only exceedingly luxuriant, but the pony and some goats we notice decidedly prefer it to either lucern or meadow grass, produced without irrigation; and the same remark is made by one of my neighbours, who has a field irrigated with the water of the river Wandel, which contains occasionally a notable portion of the drainage of the town of Croydon.

It is perhaps of little use (as our turf was only laid in March) to report one season's produce of grass; still, as we have kept an account of it, it may be cheering to the reader to have the account. The grass was not ready to cut the first time until May 25, since the turf had to establish itself, and to contend with dry weather. The weight and the days of cutting were as follows:—

May 25	28 lbs.	June 8	65 lbs.
„ 27	40 „	„ 10	50 „
„ 30	42 „	„ 12	50 „
June 1	50 „	„ 15	50 „
„ 3	60 „		
		Total	435 lbs.

The ground was then irrigated, as I before described, only once. It began to grow again *immediately*, and kept on in spite of a very dry season, which *parched up all the surrounding* grass lands. By July 27 it was ready to cut again—the produce being evidently better than before. The days of cutting and the weight of this second crop were then—

July 27	75 lbs.	August 7	50 lbs.
„ 30	65 „	„ 8	40 „
August 1	55 „	„ 10	75 „
„ 3	40 „		
„ 5	60 „	Total	490 lbs.

The same plan was a third time carried on of cutting and irrigating, the same dry weather still attended us, and the same growth of the grass. On the 1st of October, our third crop of grass was commenced cutting, and is now going on; it is in every respect equal to either of the preceding; the same irrigating is taking place, the same early shooting of the grass is visible. The reader will remark that we have thus secured three crops, and lost the time (in February and March) sufficient for the growth of a fourth; but omitting that from our calculation, we have (taking the average weight of the crops to be equal to 450 lbs.) we have, I say, mown 1350 lbs. of grass off 208 square yards of land since the turf was laid in March, or at the rate of about fourteen tons of grass per acre. The sewer irrigated meads of Edinburgh always produce four or five crops annually, and I see no reason why we cannot do the same in future seasons, for the soil is evidently improved as well as its produce by the irrigation. By the house sewage, I mean the term to comprehend the entire house drainage in its most extensive sense. —*Waldronhyrst, Oct.* 4, 1850.

CATALOGUE OF PRIZE GOOSEBERRY-TREES.

Red.—Alderman, Polson's; Companion, Hopley's; Conquering Hero; Flixtonia, Barlow's; Guido, Rothwell's; Highlander, Bank's; King Cole, Polson's; London, Bank's; Lincoln, Finney's; Lumper, Fairclough; Lion's Provider, Fish's; Magnet, Bratherton's; Ricardo, Polson's; Slaughterman, Pigott's; Top Gallant, Bratherton's; Useful, Baker's; Wonderful, Saunders'.

Yellow.—Broom Girl; Catherina, Travis's; Comet, Filde's; Captain Cooke, Cooke's; Drill, Cranshaw's; Game Cock, Fairclough's; Goldfinder, Bell's; Hue and Cry, Leicester's (*new*); Gunner, Hardcastle's; Leader, Pigott's; Lightning, Fairclough's; Lord Ranclife, Ellis's; Moreton Hero, Pigott's; Oldham, Rhodes's; Peru, Cooke's; Pilot; Railway, Livesey's.

Green.—General, Thewlis's; Gretna Green, Horrack's; Green Prince, Summer's; Green Wonderful, Sanders'; Keepsake, Banks'; Little Wonder, Heath's; Overall, Foster's; Queen Victoria, Swift's; Rough Green, Dutton's; Thumper, Riley's; Tom Joiner, Goodier's; Turnout, Baker's; Thunder, Fairclough's; Telegraph, Polson's (*quite new*); Weathercock, Bratherton's.

White.—Ardsley Beauty, Thewlis's; Coppice Lass; Cossack, Chapman's; Eagle, Cooke's; Freedom, Moor's; Flora, Chapman's; Jenny Lind, Lockett's; Lady Stanley; Lady Leicester, Bell's; Mary Yates, Sandiford's; Queen of Trumps, Leigh's; Snowball, Robinson's; Snowdrop, Bratherton's; Tally-ho, Riley's; White Hare, Mosely's.

Mr. Turner, of Neepsend, Sheffield, has sent us the above list as the best that can be grown.

EXTRACTS FROM CORRESPONDENCE.

STOVE WITHOUT CHIMNEY.—The stove mentioned in my former letter (page 303 of vol. iv.), and referred to by your correspondent (W. W. B.), is not intended for a chimney. The manufacturer prepares fuel which he warrants to produce no disagreeable smell; but I confess I did not find it free—not more so, I think, than nice clean small common charcoal—from a kind of suffocating effect, especially when first lighted. The management of the stove is exceedingly simple, yet requires great attention, so that I think none but a principal would find it serviceable. The manufacturer furnishes the purchaser with an instrument for igniting some few pieces of coal over the kitchen fire; these, when red hot, are thrown into the stove, and after burning up for a few minutes, the stove is filled with the common or prepared charcoal, the cover placed on the top, and the register left wide open to draw it up a little. It is then placed in the greenhouse; and the thermometer will soon tell whether the register requires adjustment. As you have invited me to make any other observations relative to the working of the stove, I will describe the latest improvement I made in the management of it, and also the use I made of it during the time I had it at work.—1st. I was always careful to let the fire burn up a little before placing it in the house.—2ndly. I never uncovered the stove on any account in the house. By these means I found it created little or no dust. Suppose I shut up all close at night, say nine o'clock, and at eight o'clock the next morning I visit my house; my first movement would be to lift the stove up and carry it outside, take off the top, raise up by the handle the inner case which holds the fire, carry it to some place removed from the door so that the dust may not blow in, and then give the case a good jerking, to shake all the consumed coal through the grating at the bottom (this ash I found of essential service in the spring)—the live coal remained, much or little. This, by means of the handle, I flung about, up and down, in the air to give it fresh life and vigour; and having filled up the stove with coal, removed it inside the house, where it remained untouched (except to regulate the register) until the evening. If the day was mild, the register would be nearly turned off, and little consumption took place; yet in the evening I always took my stove outside to remove, by means of shaking, the dust that might be made, and without adding any more fuel returned it to its place. Many times once filling has served me for twenty-four hours. My wife could manage all this just as well as myself, without soiling the hands. Now as to the use I made of the heat during the winter, besides warming the house: under the front wide shelf at the end nearest the door, I built a kind of oven with brick *not mortared*, covered this with slates, and left in the wall of the oven just room enough to admit my stove. Upon the slates I placed rough cinders, above that gravel, and lastly, three inches of nice earth or sand, according as I had need. This produced a continual very gentle bottom-heat, either with or without small pots. This enabled me in the depth of winter to continue my little experiments,—to strike slips, and especially to bring forward mignonette, sweet peas, phloxes, cinerarias, and a host of other things. Almost all my early annuals were strong vigorous plants, ready to plant out in beds before the 1st of May; and my nemophila bed, formed of those transplanted early seedlings, was really splendid,—great strong plants and flowers, half as large again as those afterwards sown and flowered in the open ground. When I bought my stove, I contemplated making use of it for bottom heat by means of the tin pan before described, and to enable me to use the register, which usually is placed in the cover, I had it removed to the back, and a plain cover fitted. When, therefore, my stove was placed in the oven, it stood with the register towards the opening, so that I could regulate the temperature without the necessity of lifting it out. I may add, that until I used the means here described for obviating the dust, I found it

so troublesome that I purchased a tin pipe and fitted it to the register hole, and let the pipe pass through the end of the house; but I found this make the matter still worse; for being obliged to supply the stove with fuel inside the house (unless I disconnected the pipe and stove every time I fed it), the increase of dust was quite apparent. After all these difficulties surmounted, I am prepared now to commence another winter with the same machinery, only, in addition, I have fixed on my roof, very simply, a roller blind, to let up and down at half a minute's notice, supported by bearers to keep it from the glass. I broke a great many panes last winter by using mats and such material as to keep out rain and cold, and keep all the heat produced in the interior of the house. My glass was of the common kind—panes about 7 in. by 5. I paid 1½d the *square foot*, all cut to my size.—J. B.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

Back Numbers of Cottage Gardener (*J. R. M.*).—You can now have all the back numbers, at the original price, for they have been re-printed.

Barren Kitchen-Garden (*D. A. B.*).—Your light soil which was so plentifully manured with coal ashes, may well be unproductive. In a dry summer it must have its crops burnt up. Give it a heavy dressing with clay marl as you propose. Night-soil is too stimulating on such a soil. Put on the marl now, then ridge the soil, and in the spring the whole will break down and incorporate well together. Stable manure half decomposed is best for such a soil. You will see from our answer above, that you can have *all the back numbers* of The Cottage Gardener. By all means have them; you will find them full of valuable information, and excellent for reference. Your *strawberry plants* in your kitchen-garden should also have a dressing of marl. In May cover the ground among them with mulch. Thin your *turnips* to half the usual distance; it is not probable that they will give you any bulbs, but a good crop of sprouts in the spring. Answers to other queries next week.

Uniting Bees (*W. A. E.*).—"Can it be done when the two stocks are near together? [*Yes.*] I have two hives standing *close together*, one the parent hive—an old stock—and the other an immense swarm of this year's from it. The parent hive is thin of bees, and the swarm could easily spare some. [*Partial driving would not answer.*] There is, unfortunately, so much superstition among the cottagers about their bees in this neighbourhood, that nothing will induce them to sell their bees when they are going to burn them, or I should have tried 'The Country Curate's' plan of forming a new stock with condemned bees. How could I best keep the sun off my bees in winter, as recommended by a writer in your last number, to prevent their being induced to come out of the hive in winter? [*By following the directions given in Taylor's "Bee-keeper's Manual," page 147, fourth edition.*] When do you consider a hive worn out with age, and requiring new combs? Mine is three years old. [*In two years more commence cutting out the combs, taking first the two outside ones.*] This old stock, which is apparently thinly populated, has still a few drones in it, which I fear is not a good sign. [*The queen is either dead or worn out by age.*] It weighed 28 lbs., viz., 20 lbs. without the hive and board, but including bees and combs, on the 10th August; and I have given them food at the top ever since, which they scarcely will touch. The swarm which weighed only 11½ lbs. without the hive, has consumed at the top many pounds of food. Out of four stocks which I have had at different times, only one could I persuade to feed at the top, though one of them was starved to death last spring, from its obstinacy in not taking the food. The only one which has always fed well at the top, is the old stock I have alluded to; and what is singular is, that the swarm it threw this spring feeds well at the top, and since then nothing will induce the bees in the parent hive to come up into the feeder. Is there any way to entice them to do so, as I do not think they can have enough honey? I use two feeders recommended in your work. My bees are much troubled with a small fly which hops about and gets into the hive." [*The flies will not injure them, they are there only to lay their eggs in the carcases of the dead bees. Let your food be 3 lbs. loaf sugar, one pint of water, and one pound of honey, and your bees will take it readily from the top.*]

Plants for Greenhouses without Heat (*M. W., Liverpool, and J. S. L.*).—You will see you have been attended to by Mr. Fish. Plants suitable for a small greenhouse in which no more heat is used than is necessary to exclude frost. (*J. S.*)—This also has met due attention.

Heaths in a Window (*Janet*).—These, no doubt, suffered from want of air and being drawn up. *Fuchsias*, probably, from the same cause; or from fading, as the leaves generally begin to fade at this season. If not let us hear again.

Root-pruning (*An Incumbent*).—Your case is, indeed, strongly illustrative of the evil of deep and rich soils; for peach-trees will not produce "basket-rods" in shallow and moderate soils. We fear you have been too mechanical in your proceedings: why two feet to both old and young trees? However, you have not done all in excavating at two feet; the foe still lurks at the root; and we advise that you cut beneath your old trees, presuming that they produce gross shoots, removing all roots below two feet, and taking away the bones and drainage matter, which may be replaced by stones, cinders, or any imperishable and unnutritious material. As to the young trees, pray take them up and replant them; making platforms according to directions in our previous numbers. You may fill in your trenches in November; and please to observe, that "stopping" *alone* can never make a tree right unless the root act in concert with such manipulations. Your beetle would, in all probability, be attracted by a kind of food adapted to his habits. These things are much oftener effects than causes.

Pruning Vines for Forcing (*A Subscriber, Lewes*).—At whatever period vines are required to be put in action—or forced, if you will—the sooner the pruning takes place when the foliage has turned yellow the better. You are a beginner, you say: remember then that the root is never totally inactive; if ever so, it will be about the time of the fall of the leaf in deciduous trees. If you are jealous of the vine bleeding, apply a little white lead to the wound.

Tree Violets (*A Lover of Flowers from Childhood*).—Your tree violets, judging from the leaves you sent, are in the last stages of consumption, from the attacks of the *Red spider*. We burnt the leaves at once, for fear of infecting the whole county with that pest; and we would advise you to pick off every leaf that is so infected, and then you will have but a very few left. Then make a lather with soap and warm water, and wash the whole of the plants with it from top to bottom, three times the first week, and twice a week for the next five weeks. Wash pots and all, and take away the surface soil also, but keep the pots on their sides while the plants are being dressed, so that the soil does not get soaked. When the plants are dry after the last washing, dust a little sulphur on the stems, and at the bottom of the leaves, but not on the blades. If any means can cure them without doing them any injury, that will do it.

Cricket Ground (*P. C. C.*).—All the grass seeds in the country can only answer as a make-shift where the turf is already made up of coarse grass, and patchy; and all the soot, or guano, or other dressings you can apply to it, will only make the coarse grow more coarse. Sow the following seeds next February, roll often, and always after frost; and as soon as grass begins to grow mow once a week, *at least*, and use a close-teethed rake, or daisy rake, instead of brooms, which would disturb the young grass too much the first season. A mowing machine would be still better; and there is but one kind, and that costs, we believe, about eight pounds. The quantity of seeds is, for an imperial acre—20 lbs rye grass (*Lollium perrene tenue*), 6 lbs. white clover, 2 lbs. small yellow clover, 5 lbs. dog's tail, 3 lbs. sheep fescue, 2 lbs. hard fescue, 3 lbs. meadow grass (*Poa nemoralis*), and 2 lbs. yellow oat grass.

Painting the Outside of a House (*Rev. J. T. P.*).—It so happens that we have the following from two of the best architects of the day. We print both—choose for yourself. 1. "Nothing is better than three coats of oil, the old way of painting. Thus, the first coat with boiled linseed oil and white lead, subdued with lamp-black to suit the tint; for the second coat use spirits of turpentine for oil; and the last coat with oil and the usual quantity of dryers." 2. "Anti-corrosion paint only, three coats, and after the second coat to have the walls dredged with fine sand while the paint is yet wet; and after the third coat of anti-corrosion paint the walls will look as much like stone as they can be made with paints."

Autumnal Unions by Driving (*An Incumbent*).—"How long should the upper hive remain upon the one inverted; I mean after the tapping for 10 or 15 minutes has ceased?" Not more than five minutes.

Cuttings (*G. Dear*).—We cannot write private letters. No one will give cuttings in the way you suggest, and if you write to the parties your letter will remain unanswered.

Malt Wine.—We have received two more recipes, and as those who have kindly sent them declare that these recipes give birth to wine "equal to most Madeira," we add them to those we have published before:—"To 32 gallons of water put 96 pounds of raw sugar; boil and skim it clean; when quite cold put to every gallon of this liquor one quart of new ale out of the vat that is working (as nigh as can be managed when the fermentation is at its highest); let it stand in a tub for a day or two, then put it into the vessel with ten pounds of raisins and one pound and a quarter of brown candy. When it has done working put in three quarts of brandy and 2 ounces of isinglass. Keep it four years in the wood and then bottle."—"Put 21 pounds of sugar into six gallons of water, which boil well and skim it; when cold, put in six pounds of raisins, chopped very fine, and six quarts of ale wort, with toasted bread dipped in good yeast; let it work two or three days in a tub; stir it once a-day; then put it into a clean cask, and add four ounces of sugar-candy and a quarter of an ounce of isinglass, which is to be dissolved in a little of the liquor before being put into the cask. Let it remain three weeks, and when quite done working put in a quart of French brandy; let it remain twelve months before it is bottled."

Cottage Gardener's Dictionary (*Elizabeth, Liverpool*).—This will certainly appear on the 7th of November. You can obtain it and *Glenny's Properties of Flowers*, by ordering them of any bookseller. If one bookseller will not serve you, try another. So you are your "own gardener, although 63 years of age;" and we are delighted to hear from one who not only can grow some of the finest dahlias and tulips, but can

write a good letter about them. We will give an extract from your letter, just as an example to others; and may a long continued green old age enable you to write many such!—"I have some choice *Dahlias*, allowed to be, by judges, the finest and best collection for the size of the garden, which is thirty yards by five and a half; consequently, you will say, it is quite crammed; but they are now standing with all the perfection they did a month ago. I forgot to say, I have about four dozen roots; but in my opinion, *Cardinal Ferrite* stands unrivalled. I am my own gardener, although 63 years of age; sow, plant, transplant, and layer all myself. I have some fine *Tulips*; and having to make the best of every inch of ground, planted my Gladiolus floribundus in the same bed as the tulips, as they come in so well in autumn—the former in spring and the latter now about—and never did I see them look more healthy than this season, and yet, out of four dozen of bulbs, I had only a few spikes of flowers; can you tell me why they have missed blooming? I preserve my dahlias with little trouble; I let them remain in the ground as long as safe from frost, then make choice of a dry day to take them up. I shake off with care the greatest part of the soil; and as our kitchens are under ground, the back kitchen standing south, I leave about 10 or 12 inches of stem to them, and carefully place them under a large kitchen dresser facing the door, which is half glass; when I consider them sufficiently dry, I put a coarse double wrapper and an old hearth rug over them, excluding them from light, and examine them every three weeks, to see if any of the tubers are decayed; if so I cut them away, and have been invariably successful."

Diseased Vine (*Alfred Neve*).—We will write on this fully next week.

Pyramidal Training (*Jane*).—You ask our opinion upon this and upon the dwarf system secured by grafting on quince and paradise stocks, and we have no hesitation in pronouncing them excellent for small gardens, and for situations where fruit-trees of a larger and more spreading growth could not be admitted. We have pears, cherries, apples, and plums growing along the edges, ranging north and south, of our kitchen-garden quarters; and we can grow all kinds of vegetables close up to them without any injury to either. Of course you have a crop only in proportion to the size of your trees, but that crop is all gain. Pears are not necessarily made gritty by being worked upon the quince; if you tell Mr. Rivers what you wish for he will not disappoint you.

Himalayan Pumpkin Seed (*Rev. T. R.*).—Thanks for your rules, &c. We have no seed, nor shall we have.

Name of Plant (*E. G. R.*).—It is impossible to tell the name from a leaf. It is not a *Lupinus*.

Asparagus Beds (*A Constant Subscriber*).—March is the best month for making and planting. See vol. iii., page 291, for full directions. *Verbenas*, &c., will be killed if you plant them in a hotbed. They require no more than to have the frost and damp kept from them in winter. Pray refer to our indexes for full directions.

Christmas Pear (*W. C. D.*).—The *Winter Nelis* will suit you. It is in perfection from November to January. We prefer dwarf standards.

The Aylsham Horticultural Society for the encouragement of cottage gardens, held two exhibitions during the year 1850, and notwithstanding those little drawbacks from local circumstances and petty jealousies, which so often impede an infant institution, bids fair to assume a permanent character. It has distributed upwards of four pounds in prizes of one or two shillings to cottagers, and its exhibitions have been attended by many visitors of the town and neighbourhood. Numerous specimens of flowers, fruits, and vegetables, a variety of plants in pots, and some pleasing devices were also contributed by those who have gardens. A small sum remains in hand to begin the new year, which, considering the smallness of the subscriptions, is a favourable sign that the labours of the cottager will not go unrewarded there in the year 1851. We wish we had room for more such reports, and must devise some plan for doing so. We have no proxies which you ask for.

Mulberries Preserved Whole.—The following has been obligingly sent to us:—"Gather your mulberries on a dry day, when they are nearly, but not *quite* ripe. Fill the usual preserving bottles with them; tie the mouth over with wet bladders; put the bottles into a preserving-pan up to their necks in cold water (N.B. A little hay at the bottom of the pan will render the bottles less liable to break); place upon a stove not too hot, or on a slow fire; let them remain till *nearly* the boiling point, then remove the pan and let the water cool before you take out the bottles; store them up. A few bottles may be expected to burst during the process; but care should be taken to do them very gradually. Mulberries preserved in this way retain their flavour much better than when preserved in the usual way with sugar. We only recently finished our last bottle of those preserved last year. We are trying the experiment this year of not tying them down with bladders before heating, only with paper, and then filling up with cold water, and then tying them up for use. *Black currants* so treated last year answered well without shrinking."—B. V.

Laying in Brocoli (*Ignoramus*).—To "lay in brocoli" is a gardener's phrase for taking it up with a large ball of earth round its roots, and putting it into a trench dug deep enough to bury it down to the leaves, and reclining with its head to the north. You say, "I cannot think it right to take up my beautiful plants, upon which I have bestowed so much pains, and which stand from 18 inches to 2 feet high, in excellent health!"—and we once thought as you do. But we promise you it *is* "right." Take them all up and lay them in close together, in rows, as we have directed. They have made all their growth—they have stored up all the prepared sap for forming their heads in spring—and you will find they will produce heads just as fine, will be saved from being killed by the frost, and you will have their bed for any other crop.

Arbor Vitæ (*A Subscriber, Lincoln's Inn*).—How can these droop if "they look fresh and green?" Put them into larger pots. Remember they are naturally trees 20 feet high, so may well be stunted after being kept in a pot some years.

Erodium Moschatum (*T. M. W.*).—Can any of our readers send us some seeds of this English plant (the Musky Heron's Bill) for our correspondent.

Salvia Nemorosa (*B. B.*).—The English name of this is Wood Sage; and the seed of this, as well as of *Origanum rubescens* (Haworth), may be obtained, we should think, through the herb-dealers in Covent Garden Market. *Cuscuta chinensis* (Chinese Dodder) is hardy; but the whole genus of *Anacampseros* are either greenhouse or stove succulents. Other answers next week.

Melon Cuttings (*Veras*).—You will have seen what Mr. Errington said about cucumber cuttings, and his observations apply to those of the melon. Cuttings taken from a vigorous melon plant in summer will bear fruit in the autumn of the same year. Absence prevents our answering your other queries until next week.

Lists of Fruit, &c. (*F. H. Earle*).—Have two Black Hamboroughs. To your Pansy list add *Satirist*, *Ophir*, and *Black Prince*. You are right in your other lists.

Seedling Gloxinias (*A. U. B.*).—These were quite faded when received; they should be packed in *wet* moss.

Rhododendron Javanicum (*J. G.*).—We incline to the opinion that the Java Rhododendron is hardy, though usually treated as a greenhouse plant. The *Brugmansia* is not sufficiently hardy to stand the winter unprotected. That mentioned at page 159 of our last volume will be cut down before the winter, and the roots protected.

Weeping Ash (*Noritius*).—The weeping ash will bear pruning, and November, or March, is the best time in which to perform the operation.

Cottage near London (*A Real Lover of Flowers*).—Take up the gooseberry bushes this winter; dig and level the ground, and either turf it to suit the old lawn or sow seeds of grasses about the end of February. The best kind of grasses you will see mentioned in our directions for a cricket-ground to-day. The seedsmen will tell you how much to use, according to the size of the ground. See that the standard roses are not higher than three feet in the stem, and select the best of the autumn ones, such as *Madame Laffay*, *Barrone Prevost*, *Duchess of Sutherland*, *La Reine*, and others of that class; and for your garden a plant of *Gloire de Rosamene* would look well, planted with each standard to hide the stem, and would be more in character than any other plant. For planting the borders, see our former lists.

Lycopodium Cæsium (*John Holland*). — Your two specimens of *Lycopodium cæsium* growing under two glass shades, eight inches wide and eight inches deep, with a glass cover eighteen inches high, have grown up to the top, and are losing their lower leaves and becoming blanched in the centre. You ask the cause, and remedy. The cause is not, as you imagine, the want of light, but the want of air; any plant kept close will do the same. The only remedy we can suggest is to destroy the old plants, replace them with fresh ones, and have a contrivance to give air when the heat rises above 55°. Too much light destroys the beautiful blue green, which is the attractive ornament of this plant; therefore, you need not fear that the situation in which your cases stand is injurious to the plants. The best things to plant in your new larger shades are a collection of hardy and half hardy *ferns*. These thrive remarkably well in such cases, and are pretty permanent. The boxes to contain the soil in which they thrive best is a mixture of fibrous peat and turf—two parts of the former and one of the latter. The drainage to consist of some large pieces of broken pots and charcoal, and a stratum of smaller pieces upon them; the whole to be three or four inches thick. Cover the drainage with a thin stratum of moss to prevent the finer particles of the soil from stopping up the drainage. It will be better to have some holes at the bottom to allow the superfluous moisture to escape, but if care is taken not to give too much water at once, the holes may be dispensed with. You may procure the right sorts of ferns by applying to Mr. Appleby, of Pine Apple Place, Edgware-road.

Gardens near London (*B. H.*).—We know of no garden so near as two miles to the General Post Office. There are several near to Maida Hill, and some at Bayswater, but we cannot learn to whom you should apply. If you take a walk that way any of the tenants will inform you what you wish to know. There is a piece of ground now offered to be let for gardens on the banks of the Regent's Canal, near the Warwick Villas.

Roses for a Hedge (*H. H.*).—The following perpetual roses will grow on their own roots, and will answer your purpose to form a low hedge with:—Louis Buonaparte, Mrs. Elliot, Madame Laffay, Du Roi, Baronne Prevost, La Reine, Duchess of Sutherland, Jaques Lafitte, Lady Alice Peel, Geant des Battailes, Wm. Jesse, Joan of Arc, and Clementine Seringe.

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WEEKLY CALENDAR.

W D	OCTOBER 24—30, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Th	Crispin.	30.124—30.095	60—49	S.W.	—	41 a. 6	48 a. 4	7 15	19	15 49	297
F	Whitethorn leaves fall.	30.033—29.973	62—52	S.W.	0.06	43	46	8 2	20	15 47	298
S		29.860—29.780	60—42	S.W.	0.01	45	44	9 0	21	15 54	299
Sun	22 Sunday after Trinity.	30.035—29.715	62—51	S.W.	0.04	47	42	10 5	22	15 59	300
M	St. Simon and St. Jude.	30.530—30.285	65—41	N.W.	—	48	40	11 17	☽	16 4	301
Tu	Wild Duck comes.	30.636—30.535	60—31	S.	—	50	38	morn.	24	16 8	302
W	Woodcock comes.	30.315—29.990	61—39	S.	—	52	36	0 35	25	16 12	303

In the 31st of October, 1843, died the Rev. William Lewis Rham, of those worthy characters who treading in the steps of the patriarchs only preside effectually over the spiritual interests of those committed to their charge, but labour also to improve their temporal condition. He was born at Utrecht, in the Netherlands, in 1778; and of that country his father was, we believe, a native, but his mother was of his birth. Mr. Rham came to England in early life. He studied for some time at Edinburgh, with a view to the medical profession, but eventually the church became his destination, and he entered at Trinity College, Cambridge. In 1806, being then in his twenty-eighth year, his name appears in the Tripos as tenth wrangler, the senior wrangler for that year being Sir Frederick Pollock, the present Chief Baron of the Exchequer. In 1808 Mr. Rham was presented by the Dean and Chapter of Salisbury to the living of Winkfield, Berkshire; and a few years afterwards the Nassau family presented him to that of Ferafield, in Norfolk. He died unmarried at Winkfield, after a short illness.

The life of Mr. Rham was uneventful, but it was marked by active and unremitting usefulness as a parochial clergyman. He was the friend of the poor in the best sense of the term. He looked beyond the wants of the moment, and sought the means to improve and elevate, as well as temporarily to benefit, the objects of his benevolence. At the Winkfield School of Industry, which, under his fostering care, became a model for all similar institutions in country parishes, the young were taught not only the elements of knowledge, but were instructed in useful arts, and trained to habits of industry. Such were the means by which he endeavoured to promote the best interests of his parishoners. He was much loved by all classes amongst them, and they are about to erect a tablet to his memory in the parish church.

The school which Mr. Rham founded at Winkfield is thus described by Mr. Tremenheere, in his Report to the Council of Education, in March, 1839:—"This school was established in 1835 for 50 boys and 50 girls. The building consists of a house for the master and mistress, two schoolrooms, a workshop, shed, &c. It is surrounded by two acres of garden, to which two more acres have been lately added, to be also cultivated, by the master and the boys, with the various agricultural crops, according to the most approved method and rotations. The industrial work originally projected for the boys was—gardening, the use of carpenters' and joiners' tools, basket and mat making; for the girls, the usual needle-work, knitting, ironing, cooking, and the common household employments, under the direction of the mistress. The manual instruction of the boys in the workshop has been hitherto of a limited kind; but the garden presented very satisfactory evidences of their skill and industry. It is cultivated in common, with the exception of small plots about twelve feet square, which belong to the boys, and of the produce of which they keep debtor and creditor account. The produce of the rest is sold to persons who take it off to market, and the proceeds are carried to the general account of the establishment. The crops were abundant, and more varied than it is usual to see in common gardens. Something was found to fill up every space, and to suit every spot—either one of the ordinary garden crops, or some of the useful herbs, or some kind of plant or flower; and thus a lesson of considerable use to a cottager is early communicated, in the habit of making the most of even the smallest portion of ground, however apparently unpromising. The practical instruction is the valuable example of which the pupils here have the benefit in their garden-work, will be greatly extended when the agricultural operations commence in the field just added to the establishment. They will then enjoy the further advantage of pursuing all the details of the most useful husbandry, under the same good guidance, namely, that of the benevolent originator of this institution, the Rev. W. L. Rham, so well known as an accomplished agriculturist."

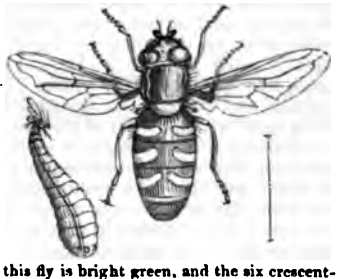
But it is as a scientific agriculturist that Mr. Rham's name is most widely known; and, until recently, it was perhaps better known in other countries than in England. His early connection with the Continent, which was kept up in after-life, afforded scope for observation of the husbandry of different countries; and his thorough knowledge of several foreign languages gave him access to the works of scientific writers on foreign agriculture. In the next place, his chemical studies at Edinburgh, while preparing for the medical profession, were of eminent service to him; and scarcely less so was the proficiency in mathematics which he gained at Cambridge. It may safely be asserted that no other writer on agriculture ever enjoyed in so great a degree such a combination of advantages; and to his knowledge of the chemical and mechanical departments of agriculture there was united a thorough acquaintance with its routine details. We would simply refer to the article "Plough," in his *Dictionary of the Farm*, as an example of this combination of science with practical knowledge. On his farm at Winkfield he engaged in his favourite pursuit, with a practical perception of its details, and a scientific knowledge of its processes, which has probably never before been possessed by one person. Thus, above all other writers of the present day on the subject of agriculture, Mr. Rham was eminently fitted, from his excellent judgment and sound sense, to be useful to the country in the existing state of its husbandry and rural economy, when, probably, we are on the eve of great improvements in every department of these most important branches of industry. He was an active member of the Council and upon the committees of the Royal Society of Agriculture, from its formation in 1838, and his loss was proportionably regretted by that Society. His *Dictionary* contains his views on all the principal subjects of interest to the agriculturist. It is compiled, without alteration, from the articles which he wrote in the "Penny Cyclopædia," the first article [After-math] being contributed by him in 1833, and the last [Yorkshire Agriculture] in 1843, only a few weeks before his lamented death. He was also the author of "Flemish Husbandry," a small work written for the "Farmers' Series of the Library of Useful Knowledge." This work was founded on a pedestrian tour in Flanders, in which, for many weeks, he walked from farm to farm, enjoying the rough hospitality of an industrious population, speaking their language readily, and entering into their pursuits with the zeal of a skilful and sympathizing friend. The Essay on the Analysis of Soils, for which he obtained the prize offered by the Royal Society of Agriculture, is published in the Society's "Journal," which also contains some other valuable contributions from his pen. Not long before his death he had also commenced a series of papers on agriculture and rural economy in the "Gardeners' Chronicle," edited by his friend Dr. Lindley.

Mr. Rham's correspondence on agricultural subjects, both in this country and on the Continent, was extensive; and he gave his opinion with the utmost readiness. Nor did he stop here, or remain content with having acquitted himself with extreme urbanity and courtesy, but not unfrequently pressed his hospitality upon those who had consulted him. Great as was the respect paid to his opinions, he gave them without the least dogmatism. In one of his last communications to a valued friend (Joshua Rodwell, Esq., of Alderton Hall, Suffolk) there is a passage at once characteristic of his unassuming disposition and of his deference to humble practical experience, which men who have acquired a scientific knowledge of any art are usually too apt to despise. "Whatever," he remarks, "great chemists may say about the component parts of soils, I am persuaded they can never decide as to the aptitude of any soil to produce a crop till experience has shown it. I believe we have all overlooked some electro-magnetic qualities which we have not yet instruments to measure." It was this reliance upon experience, in connection with a bold but searching investigation of theory, which renders Mr. Rham's writings so well adapted for the present time. In the eagerness for improvement, a writer is best calculated ultimately to benefit his country who unites scientific attainments of a high character with a rational degree of respect for the practice of ages.

The above memoir is extracted from the Supplement to the *Penny Cyclopædia*; and we cannot find any passages among our notes which that memoir has not anticipated.

Meteorology of the Week.—From observations made at Chiswick during the last twenty-three years, the average highest and lowest temperatures of these days are 54.6° and 38.7°, respectively. The greatest heat, 67°, occurred on the 29th in 1833; and the extreme cold was 25°. The days on which rain fell during the time were 76, and the remaining 85 days were fine.

Insects.—One of the insects most friendly to our aphis-afflicted plants is the Hawk Fly (*Scæva* or *Syrphus pyrastri*). In June this fly may be seen hovering like a Hawk over the rose and other flowers, but, as Mr. Curtis observes of a nearly related species, with no such felonious intent. Its favourite resting place is within the petals of a flower, of whose honey it probably partakes, but is seemingly as well pleased with inhaling its perfume. The trunk of this fly is bright green, and the six crescent-shaped bands on the back of its body are yellowish white. The wings are quite transparent. This fly deposits its eggs upon roses, cabbages, and any other plant on which lice abound. In due time those eggs give birth to a fleshy maggot of the form represented in our drawing, and of a yellowish green colour. This maggot feeds upon the aphides; and when it has acquired sufficient power, he gradually pushes forward his neck, says Mr. Curtis, holding by his hind-feet and heavy stern, and stretching out his head like a leech, seizes the first unsuspecting aphis, and lifting him up in the air, sucks his victim with evident satisfaction, afterwards casting away the skin, legs, and wings as pitilessly as a schoolboy does the rind of an orange. This maggot has the peculiarity of six rows of feet—seven feet in each row—and employs them all in moving. As a maggot it lives about twelve days, as a pupa about a fortnight, and as a fly for a similar space of time. Let our readers be careful not to disturb these maggots, for they destroy quite as many aphides as are slaughtered by the Lady-birds.



A RATHER extensive inquiry, suggested in the first instance by letters we had received and statements noticed in the pages of our contemporaries, leads us to the unsatisfactory conclusion, that of late years ulcers in some form have been greatly on the increase among our cultivated plants of foreign origin, whilst our native plants, whether wild or cultivated, are entirely exempted from the epidemic.

We need scarcely refer our readers to the potato murrain as a prominent illustration of the fact, but we may add to these, onions, dahlias, the larch and the vine, though we could largely increase our catalogue of species that have been extensively suffering from ulcerous disease.

Whole beds of onions we know have been so destroyed by ulcers, that if you took hold of the leaves the slightest pull separated them from the bulbs, and these were then found to be in a state of putrefaction. Dahlias, in very numerous instances, we have heard of failing to bloom as nobly as formerly; and when the roots were examined their tubers were found to be similarly decayed. We read of vast plantations of larch suffering also from ulceration, but here the disease developes itself in the branches; and in the vine, we remember no years like the last and the present in which ulceration, or shanking, in the bunches has been so prevalent. The instances of this that have been examined by ourselves are painfully numerous, the destruction being so extensive. Mildew—that form of fungus invasion so usually attendant upon a plant with diseased juices—is also increasingly prevalent upon vines; and whilst preparing these notes, we received the following from a correspondent at Maidenhead:—

"In the early part of the season, my vines gave promise of a very large crop of grapes, both in the greenhouse and out of doors, but as the season advanced they exhibited symptoms of an unhealthy nature; instead of filling out plump and large, they ceased to grow and began to split, wither and decay away; others of a more healthy appearance became covered with a kind of mildew or mould, similar to that disease in hops, and eventually they split and died away as those which had gone before. I, for some time, believed that the aspect, which is easterly, sheltered at every point of the compass, was unfavourable to their culture, but on inquiry find another cause must operate to effect their destruction, as they may be found in this town in every aspect; some beautifully large and ripe, others green, small, and blighted. The freaks of this disease are most singular and partial. In the gardens of four neighbours, living in a line, the vines of the two outside and one middle are diseased, while the other is quite free from the scourge. Ablutions with soft soap and water have been recommended by some, but that is a commodity with anything but an agreeable flavour; as some of the fruit I have saved affords abundant proof. Saving grapes with soft soap is very much like heaving china out of an upstair window when a house is on fire. Sulphur has also been tried without success."

The splitting of the grapes, we think, from actual experiment, arises from the house being kept too warm; a conclusion we were led to test further by observing in a greenhouse where cracked grapes prevailed, that none appeared at the end of the house in which some of the glass was extensively broken. The mildew on the grape certainly may be vanquished by assiduous dusting with flowers of sulphur, provided the application be commenced as soon as the mildew is first noticed.

This mildew, and the ulcerations we have noticed, in every instance we have personally examined, are connected with excess of moisture at the roots. Even where there was not any stagnant water in the soil, yet in the case of vines their roots by having penetrated far down into the earth, were subjected to one of the worst consequences of stagnant water—cold, which prevented their action keeping pace with that of the leaves. We believe that excess of cold or of moisture to the roots—an excess unknown to them in their native climes—is one of the principal causes of these ulcerated forms of disease. We have always contended for this in the case of the potato, and we have confirmatory evidence in this letter from Mr. J. Turner, of Neepsend, Sheffield.

"I was, in 1848 and 1849, one of the directors of a small farm, and in looking over a field of potatoes in the year first named, to ascertain whether the disease had commenced its ravages amongst them, we found no symptom of it in any part of the field, except one. That part, lying lower than the rest, was wet, and here a great portion of the potatoes were diseased. It forcibly struck me that wet or moisture might be one cause of disease in the potato, and I thought I would try the experiment of planting mine the following year *on the top* of the ground, instead of in trenches, and to place upon them something that would not retain much moisture. For this purpose I procured some sawdust (not from resinous wood), and an equal quantity of fineish coal ashes, and when the ground was dug I placed my line where I wished to have the row of potatoes, planted the potatoes under the line, at a distance of 12 inches apart, and then taking away the line I covered the sets with the sawdust and ashes, about 5 or 6 inches deep, drawing up the earth from each side with a hoe, about 1½ inches deep, and thus forming a ridge over the sets about 6 or 7 inches in depth. The result was most satisfactory, having very few diseased ones amongst the crop, and this year I have added about one-fourth part of soot to the sawdust and coal ashes, planting them the same way I did the year before, and on taking them up last month (September) I had a fine crop of perfectly clean grown potatoes, with only three potatoes at all touched with the disease amongst the whole of my stock. These are *Rylott's Flour Ball*; for I grow none else for second early or late varieties. My neighbours, on the same flat of land, have had one-third, and, in some cases, nearly one-half diseased. I do not wish it to be understood that I think I have found out a "specific" for the potato murrain, I only give the result of an experiment; if any of your readers will try the same on a small scale, and *report progress* in your pages, it might be advantageous to the gardening public. While writing on potatoes, perhaps I shall not do wrong to state that in December, 1848, my worthy landlords, Messrs. H. and W. Cooper, The Tannery, Neepsend, had from me about 4½ lb of *Flour Ball Potatoes*, which they had planted, and the produce of these, they informed me, was from 160 to 170 lb; taken up September, 1849."

NEW PLANTS:

THEIR PORTRAITS AND BIOGRAPHIES.

UNDER this head we purpose publishing drawings and descriptions of the new plants, flowers, and fruits which are introduced by the aid of the numerous collectors who are now exploring far-off lands for no other purpose than to increase our vegetable riches. For these portraits we shall be chiefly, but not exclusively, indebted to our contemporaries. With their beautifully coloured and larger drawings we have no pretension or intention to compete; those who wish to see the plants of their natural colours and size must go to the splendid pages of *The Gardener's Magazine of Botany*, *Paxton's Flower Garden*, and *The Botanical Magazine*; but what

we hope to effect is a more general diffusion of correct knowledge of new plants, so as to impart not only a desire for their possession, but the means of judging whether they are suitable to the reader's requirements. Keeping this in view, we shall always endeavour to give a correct idea of the habit of the plant.

Schrœder's Spotted Air-plant (*Aërides maculosum*; var., *Schrœderi*).—This beautiful orchid is a native of the hills near Bombay, and was purchased at a sale of newly-imported plants, about six years since, by J. H. Schrœder, Esq., of Stratford Green, Essex, so well-known as a spirited and successful orchid grower. This is the third year of its blooming; and, like the longer known *Aërides maculosum*, it is of dwarfish habit, and its flowers are white, spotted with purplish-pink, but much paler than the original species. Naturally it appears to produce a spike of flowers from within the base of every leaf.—*Gardener's Mag. of Botany*, vol. ii. p. 121.

THE FRUIT-GARDEN.

FORMATION OF FRUIT AND KITCHEN-GARDENS—*Continued.*

Having at page 18 of the present volume delivered a few general ideas on the above subject, and conducted the reader to the kitchen-garden door, we now resume the subject at that point; and whilst at the entrance, it may be well to consider the matter of convenience as bearing on the situation of the entrance doors.

The first thing that comes to mind, and a consideration of some weight, is to economise labour in the article of manure—to have as little carting and wheeling as possible; for much of this, through inconvenient positions in the doors, forms a serious item in the year's labour. Wherever the general depôt of manures, rotten leaves, and other manurial matters may be, a door should, if possible, be placed on that side; and where much soil and manures are to be introduced, and the distance rather considerable, a pair of double doors, with a corresponding width of pathway or road, will be found of great service in economising labour, inasmuch as bulky materials may be drawn by cartage to the very centre of the garden. This will be found a great saving of labour the year through; and when the pleasure-grounds, slips, &c., lie in that direction, such an arrangement will be found of vast service during extensive alterations, which not unfrequently involve a good deal of labour.

Thus a good kitchen gardener would plan out his whole scheme of cropping in the early part of November in each year; and at each leisure moment the manures necessary could be carted to a central spot especially provided, and would supply wheeling labour to the requisite parts during frosty weather, or as morning work. It must be understood, however, that this suggestion is offered on behalf of a rigid economy; for it must be confessed, that a store of manurial matters suffered to lie for days in the centre of a well-kept kitchen-garden is by no means an ornamental affair; and, besides, a central depôt necessarily leads to a slight derangement of that simplicity of form and arrangement which should appear in all parts of a good kitchen-garden. We think it a duty, however, to point out both the merits and demerits of given plans, in order that different classes of readers may be gratified.

We need hardly observe, that a door should open at as near a point to the mansion as possible; and as the doors of a neat kitchen-garden are generally made exactly opposite to each other, through the intersection of two principal walks at right angles to each other, of course in studying the before-named conveniences some trifling compromises will have to be made as to distance. In all such cases, however, a little bending or twisting of the approach walk or walks will readily overcome this difficulty.

We would in all cases have the entrance from the house as much concealed as possible by clever planting, for these episodical plots should not be spied into with too much ease—such detracts from the dignity and style of the place, and renders the digressive plot itself less interesting when entered. What said Pope—

> "Let not each beauty everywhere be spied,
> Where half the skill is decently to hide."

Pope, we believe, it was who composed this couplet; if, however, our memory is treacherous we beg his memory's pardon.

A well covered trellis, or arcade, would make a capital terminus to the entrance walk from the house; and in order to give it a special character such might be covered at the top with standard pears trained overhead, whilst perpetual roses, Irish ivy, or other ornamental matters of a permanent or somewhat evergreen character, might form the sides. Thus might a slight amount of curiosity be excited, and thus a connecting link be formed between the dress grounds and the kitchen-garden; and we should see no harm in giving an arcade of this character a length of some ten or twenty paces; and if the junction with the house walk can be so managed, by all means let the arcade enter straight on the door. It requires a little management, however, in ground work to form a clever junction between a straight line and a curve. One of the best plans, we think, is to interpose an object at the point of junction—such as a seat, a sun-dial, a vase, a statue, a massive rustic basket, &c., &c.

We must now begin to think of the fruit-trees, and would not have meddled so much with the decorative appendages, but that these departments are to a certain extent interwoven with each other.

Wall Borders.—Before proceeding to details, it will be well to discuss for a moment the width of garden wall borders. By something nigh akin to fatuity, it seems to obtain as a standard notion that all borders of this kind must be some ten or twelve feet wide. Now,

there is not a man living who can give a proper degree of weight to such prescriptive doctrine by an incontrovertable course of argument. To be sure, we shall be told that this sort of width looks better; and, moreover, we have heard an old lady—a great stickler for a wide border—affirm, that for early peas and lettuces we should be made totally dependent on our continental neighbours if all the English peach borders were narrowed so as to be merely a receptacle for the roots of the fruit-trees. Now, this old lady, though a most respectable sort of person in principle, is not fit to hold the candle to our good friend Beaton's "Aunt Harriet." The latter personage always took care to dart her eagle eyes through the murky halo which ever and anon enshrouds truth, unless the latter must be looked for in the bottom of the well, when, of course, it assumes a piscatorial character. To come to the point then, we do fear that peaches in England have seldom had fair play since duck and peas became all the rage; but it so happens, as we do well know, that the ducks have no occasion to wait three days for the peas, if our clever coadjutor Mr. Barnes be followed in his sound articles on kitchen gardening.

We venture to affirm fearlessly then, that nine inches of width in the border to every foot in height of the wall is sufficient, from the ground level up to the very zenith itself, although few carry their gardening matters with so high a hand. Now we do not deem it necessary to drive every culinary esculent from the wall borders; to grapple with this portion of the subject will, however, lead us too wide for our present ramble; and we must pursue our course by assuming the nine-inch standard to be correct for the present.

Now for *the walks*, which of course run parallel with this border; for we see no reason to alter their time honoured position. As we write in the main for small gardeners, we must of course advocate economy in the width of these necessary appendages. Still, we would have our readers understand that these breathing places are not room thrown away, for they doubtless serve to economise a healthful circulation of air, which is of immense importance to vegetation. For gardens of half an acre we think that four feet may suffice; for an acre we would go to five feet; and for gardens of two or more acres seven feet—the latter being about the width our landscape gardeners allow in pleasure ground walks, being, in fact, the width requisite for three persons to walk side by side.

We have now to recommend a marginal border for espaliers in a trained state, or for very dwarf standards; indeed, if our dwarfing processes be followed, no overgrown fruit-trees will be found in kitchen-gardens; and we will engage to produce by far more fruit, and a much greater variety of kinds, in this way than ever was accomplished by the old and unsystematic mode, and—what is of equal importance at least—in one-third of the time. In these days of steam, people cannot think of waiting seven years for a pear or an apricot; be it ours, therefore, to show how these things can be done.

This marginal border need not be more than four feet in width, and may run parallel with the walk. It should be occupied entirely with fruit-trees, either under a dwarfing system or as trained espaliers; and, indeed, with the walls, will produce all the fruit that any family can consume, provided the trees are established and managed on sound principles. The details connected with this branch of the affair we at present pass by; they will form the subject of future papers.

We must now stay to offer another observation connected with the width of the borders and the formation of the walks. If the borders are made of the width here suggested, it will be found good practice in making the walks to take care that the bottom or subsoil of the walk is composed of some open soil fit for the roots of the trees to penetrate; for although in their earlier stages the border itself will amply sustain them, yet when the trees acquire some age, and a considerable size, the soil beneath the walk will become full of fibres, and hence they will derive much assistance. Such subsoil, however, must be of a *very open character*, or the walk will become too retentive of moisture. Some persons may object to this, but we have had ample experience of, we will not say the necessity, but the propriety of this course, which may indeed be considered a very proper adjunct of the narrow border system, and it is, indisputably, making the most of the soil and space. In a subsequent paper we will carry on the subject, and those who are forming new gardens, and desirous of planting select collections of fruits, will do well to wait a little while until the subject is fully examined. We are aware that some of the points have been in part handled before, and that some of our readers are quite familiar with them; it must not be forgotten, however, that The Cottage Gardener has an accession of readers who have not studied the earlier numbers, and also that it is necessary to be very explicit in even little things with another and numerous class.

Our Hardy Fruits.—I must beg to congratulate "L. M. N." on the production of so useful and sensible a register of the past spring as he has inserted at page 25 of the present volume. Such records are of considerable importance, as enabling persons hundreds of miles apart to compare notes, and to deduce useful inferences. Nevertheless, as there seems a slight amount of—shall I say supererogation, in the matter, I beg permission to offer a few remarks.

"Exemption from severe weather," says "L. M. N.:" these are neither my words nor opinions. Again, to answer another point,—I really do not suppose that there *was* a "mistake in the instruments," nor infer that "all unprotected fruit *must* perish." I do, however, infer, that "L. M. N." is a non-protectionist, and I by no means dispute his right to that position; but I would beg of so sensible and temperate a correspondent to consider the question of protection on retarding principles, and see if he cannot discover the germs of a good idea, based on the relation the root action bears to the branch, the former being steadily influenced by a daily advancing temperature—the latter experiencing the occasional drawback of a whole week's vicissitudes. Until, however, root management is better understood, I have little hopes of a sound understanding on this head. "L. M. N." has done well to refer to the well-ripened wood of the south. This is *the great fact*.

R. Errington.

THE FLOWER-GARDEN.

New Plants.—The great fault of public writers with respect to what they say about new plants is, that they, the writers, myself amongst the rest, are too apt to jump into conclusions, and to pronounce a new plant as either good-for-nothing, or else praise it up to the skies; and for some years past we have had a writer or two who take a different course, but still an objectionable one with many, and put up every new plant they describe in the scales of comparative merit against the most popular plants which happen to be in the same genus, and no matter how good former plants may have been found; the new plant must be shown to have something about it which of necessity must, or should, raise it higher in the scales. But of these three ways of pushing new plants into or out of circulation, that which condemns them before the trial, or just after an imperfect trial, is least to be attended to, and the most likely to cause *bickerings* between dealers and the public. Indeed, public writers on plants are not re-

ɔd to sit in judgment between the trade and the ic; and if they do at times see cause for saying this, or the other thing about a new plant, the safest is to lean in favour of the stranger until the public it a fair trial, and then one may chime in with ır side, according to one's own judgment. Half the ening writers endeavoured last year to write down Chinese Leadwort (*Plumbago Larpentæ*), and they ɔeded so far, that the mass who like to be led by sleeve rather than take the trouble to think for ıselves, turned away from it as from an unclean g. I was nearly as far wrong on the other side, that was more with a view to stem the torrent of hecy which prejudged a stranger without a hearing—ry un-English way of dealing out justice. I did care one straw whether the plant would do in the ɔr-garden or not; but knowing it to be in the hands ıe trade, and selling lower than trumpery verbenas petunias not worth a penny per dozen, before it spoken against in our periodicals, I wrote in its ur, that we might all give it a trial; and if all had d with it, no great harm could be done. But it has failed. I have a bed of it in full bloom now, when ɔst all the summer plants are gone; and if I live ıer year, I shall plant four beds, on purpose for time of the season, when families in the country y their late flowers as they are getting scarce. It ın to bloom in the first week in September, and by 20th was in full bloom; and what brought it to my d to say anything about it now is, that a great gar-ɔr, the superintendent of one of our ducal establish-ıts, who called on me the other day, admired it much regretted that he was led away against it last season ı what he read about it. He, too, will have a couple eds of it next season, and so will many more besides, this season has taught us a little more of its cha-er and constitution It is perfectly hardy; will do er in poor than in rich soil; requires to be planted , or thinned afterwards; and as it is a late autumnal ıner out of doors, it must have a free exposure in a ıy aspect. Then, as long as the frost holds off, it es in as a second or third rate bed, according to the k of bedders in use; and after the frost few will pete the leadership with it; besides, the bed is not ıye-sore through the rest of the autumn, for it will ıd brim-full, and look well after the flowers are gone. ɜ, on the other hand, not suited for small places, re every bed should be in bloom with something or ır from the time the spring bulbs come in till the t clears off the autumn crop.

ALF-HARDY PLANTS.—Just at the time that I was ning how to plant cabbages, the greatest efforts in lening, and that for which a man got the most it, were to change the nature of greenhouse and -hardy plants, so as to enable them to stand the t in our country. I think it was in the "Memoirs" he Caledonian Horticultural Society that a clever ɔle then appeared describing a new way of "acclima-ıg," as the process was called, which caused a great on the other side of the Grampian range; tunnelling mountain back-bone from Perth to Inverness ld have been nothing to it now. The way the g was to be done, was to bring over fine plants ı the north of Africa, say from Morocco to Alexan-, sow their seeds on the northern borders of the literranean, from Gibraltar to Athens; and when plants produced seeds, they in their turn were to be n more inland, and the next generation more north-l still, and in process of time the fifth or sixth gene-ɔn would be fit and proper to do for themselves in don; and the seventh generation, always a lucky ıber, were to find their way and prosper on either ɔe of the Murray Firth. All this, to my own know-ɔe, was firmly believed by sensible people at that time; but who believes it now! who, indeed. The *Kidney Bean*, the *Capsicum*, the *Tomato*, and all our acquaintances of that stamp, have been got yearly from seeds, time out of mind, in every part of our country, without a perceptible difference being made in their powers to resist the climate; and these same plants were all this time proving another fallacy, which, even at this day, finds advocates amongst our highest authorities in such matters, and that is, that seedling varieties in course of time will revert to the parent or wild stock if they are successively raised from seed. It is true there are some few plants which have a tendency that way under particular circumstances, but they are as one out of a thousand compared with those which, when once removed, if but one stage, from the wild condition of the plant, no art of the gardener has yet succeeded to cause this reversion. Hence the danger, not to say the folly, of drawing conclusions from inconclusive evidence, or from some few isolated facts.

But to our present purpose. Then, as no art of the gardener can turn the original nature of a plant, save by cross-breeding, nature must be assisted, and half-hardy plants must be looked to in time, before we are overtaken by the winter. "Winter" comes in at the very end of our new dictionary, but wintering plants will often have to be mentioned in the body of the work; until many of the numbers are out, we must, therefore, go on in the old way, answer old questions as before. But we expect to be much relieved from repeating the same thing over and over again as soon as the dictionary is completed; and we also look for an entire new set of questions, suggested from a great host of old and new ideas which we are now gathering together in this book.

The oldest question of all, and the most pressing just now, is, "how am I to keep my geraniums, &c., &c., &c., this winter. I have neither greenhouse, pit, nor frame, and the plants have so grown in the borders that they will be too large to stand in the window. Last winter we managed to keep the young Scarlet geraniums in a window in 'the passage,' or in the 'spare room' up stairs, and the windows were available for better things. Such plants were turned out in the borders last May, and after a while they looked most healthy, but now they are so big who can do anything with them? Might as well think of housing gooseberry bushes, and yet we are very loath to lose them, and we forgot to make cuttings of them at the proper time; how would you or Mr. Beaton act if you were thus pinched?" Now, where there is neither glass nor spare windows, it is hopeless to try to keep *verbenas* over the winter; indeed, they are the most troublesome things in the world to keep over the winter without good convenience, and many other small, soft-wooded plants are little better; but as for strong *Scarlet geraniums*, any one may keep them with ordinary care, and the larger and stronger they are the easier it will be to keep them. The same care and treatment that will secure dahlias will also do for them; all the leaves and the soft part of the shoots must be cut away when the plants are taken up from the borders, then dry them partially in an open shade or somewhere away from the frost, and then they are ready for storing; and then where potatoes can be kept in-doors, will do for them also. Damp and frost, and extreme dryness, are alike to be avoided; and by looking over them once a month to see that they do not suffer from either of these extremes, there is no reason why any one may not keep lots of them. Here, where we have as many conveniences as most people, we keep several thousands of these scarlets, every winter just in the same way—under stages planted in sand or light soil, in back sheds under great myrtle trees, upon dry shelves in outhouses, or, indeed, anywhere that is safe from frost. Their only advantage beyond those of the cottager being that, with

flues or pipes we make sure from frost. We store large numbers of them in the same pots and boxes that they were growing in through the summer, first cutting them well down and scraping off the surface soil, and for four months they hardly get a drop of water. We still prefer "Harry Moore's plan" of keeping them in the same pots and soil from year to year, and make up for the loss of strength in the soil by liquid manure after the end of May. Harry's own boxes of them have been very much admired this autumn; they are now five years in the same boxes, and he keeps them down in the cellar in winter; but his cellar is very dry. No one can possibly keep a geranium in a damp cellar.

In cold pits we now use pots for bedding geraniums, except for some fancy sorts. They are planted in light soil, and the glass taken off every fine day, and the dead leaves are picked off occasionally. We have one range of quite low pits, which hold about seven thousand of young plants this way, and there are no means of giving them artificial heat—nothing save a single mat to keep the glass clean—with powerful coverings of stubble and loose straw over; and we have less trouble with them that way than with older plants in pots with their leaves on. Roots of old *Salvias*, such as the *fulgens*, *splendens*, and *chamædrioides*, we keep much after the same way. We keep them to plant out in mixed borders with *Phloxes*, *Penstemons*, and a host of other old border plants; but for beds we make up a young stock from cuttings every autumn. Old *Fuchsias* will keep in cold sheds without any danger, but all of them for the flower-garden will keep just as well in the borders, with a few inches of leaves placed over them, and many of them will do without any covering. There is no better way of keeping a bed of *Tigridias* than by covering the bed with dry leaves and then thatching it to throw off the wet. The bulbs of these are very ticklish to keep if they are taken up in the autumn, as they are seldom ripe enough before the frost sets in; and unless they are quite ripe they decay from the bottom by the score. One single mat is sufficient to save the old *Linum flavum*, the gayest little yellow bedder one could wish at midsummer; and for a front border of *Ixias* and their allies, with a great number of other little bulbs belonging to the *Amaryllis* tribe, which are mentioned in our dictionary, nothing is better than thin boards with feather edges nailed together; as that sort of covering will throw off the wet, of which they are much more impatient than of cold dry winds or a little frost.

It is very strange how little is attempted to be done with the scores of neat little bulbs that would flower in the spring and early summer in front of a cottage close to the wall where little else would grow. The reason must be that so little is said of them in books and periodicals since Mr. Sweet died. He used to keep the whole country alive with such fine tales about them month after month, but now one hears very little about them unless some new little bulb comes to be figured. I am quite sure there are no less than one thousand species of this class of bulbs that would afford endless amusement to any one who would take the trouble of preparing a front border for them. They are like children, they always want something doing to them, and there is constantly something new to be learned about them. I should be afraid to say how many hundreds of pots full of them I saw last summer with Mr. Appleby; and he is just as fond of them as everybody knows he is of those strange orchids he writes about. I wish he would lock up those orchid houses for a month and treat us with various dishes of little bulbs; at any rate, I hope he will cram them into the dictionary, that I for one may have another turn at them, as people used to say some years back I was bulb mad. But I have sadly forgotten them, and am now over head and ears with the *Amaryllis* again, and I have made a strange discovery in them this very season. The *Candalabra plants*, called *Brunsvigias*, are true *Amaryllises*, which is known to many already; but few would dream of their breeding with the purple *Vallota*; but they have done so; and if I could send the breed, and that between the *Vallota* and the *Cyrtanths* to California, where they could enjoy their proper climate, we should some day see the whole race flowering *with their leaves on*, which none of the older family ever did before. The *Calochorts* of the golden regions would then be eclipsed on their native soil. But, alas! a man ought to talk about such things at five and twenty, and not at the age of

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

COOL GREENHOUSE WITHOUT ARTIFICIAL HEAT.—In the list of plants given last week, I do not think that I mentioned the *Begonia Evansiana*, referred to in a late article, as the only one of the family found growing in cottagers' windows. As it is herbaceous, dying down every season, all that is necessary in winter is to keep its tuberous-like roots from frost, which may easily be done in such a house, by covering the pots with a little moss. Indeed, we frequently keep this and other tuberous-rooted things, along with bulbs for summer blooming, secure enough in a warm shed. This is just one of those common things which fastidious gardeners and florist amateurs toss their heads at, and term "coarse and weedy-looking!" No doubt the leaves look a little rough—the upper surface has a dash of pale yellow in its green—but then, when elevated above the eye, how beautiful is the purple dashed with green of their undersides, with the huge masses of pink blossoms bending gracefully over them. For a splendid floral effect, taken in connection with the ease with which it is produced, this common Begonia deserves to stand in the front and foremost rank among all its more prized compeers. In a cold house, without any means of artificial heat, plants have borne a dense mass of bloom from June to the end of September—are still standing, but are now beginning to fade—each plant on an average being four feet in height, above the surface of the twelve-inch pot in which it was growing, but plunged inside of a vase somewhat larger—the diameter of the head being five feet—supported by one stake in the centre, to which the stronger shoots were loosely hasped, and the weaker ones allowed to bend gracefully downwards, so that the plant as a whole, when in full bloom, presented rather more than three parts of a circle, of the above diameter, studded with hundreds of its cymes or bunches of pink flowers. The vases in which the plants were placed were about four feet in height, and tended to show off the plants to the best advantage. Several connoisseurs of refined taste, who had previously discarded this common thing which any old woman might have in her window, have been induced again to take it as a nursling under their protection. The system of management from first to last may, therefore, be acceptable. These plants referred to were strong and good the preceding season. In the beginning of October, as the flowers were dropping, the leaves getting yellow, and the stalks showing signs of ripeness by cracking and splitting at the joints, the plants were placed against a south wall, in order further to facilitate the ripening process. Here, in no great length of time, the stalks fell down of their own accord—a sure sign that the roots were charged with sufficient material to enable them to endure with advantage a season of rest. The pots were then placed in a vinery, where bedding-plants, &c., were kept during the winter, plenty of air being given, and just enough of fire-heat, and no more than was sufficient to keep out the frost.

Peaches are also grown in the same house; and when these opened their flower-buds in spring, without any more forcing than was requisite to keep the frost out, a little more attention to heat was given; the temperature at night, however, being oftener below than above 40°. Partly from this little fire-heat and the increasing power of the sun's rays, the Begonias that had been kept dry and dormant during the winter began to push up their shoots, and show signs of returning vitality. Then they received a watering with liquid several degrees warmer than the atmosphere of the house; and, if very dry indeed, they were soaked in a pail or tub,—the surface-water being allowed to drain away. This and the increasing temperature, chiefly from solar power, produced a thicket of shoots and leaves, from six to nine inches in length, by the time the vines were breaking into leaf; then the plants were shifted. If desirable, each pot might then make half a dozen, by division; but in the present case all the weaker shoots with their roots were removed, and either potted by themselves as successions, or put together for being given to those who might take a fancy to them. The strong shoots, showing by that very strength that they had a fund of organised material to draw upon in the larger tubers, were, after slightly pruning the roots and getting rid of any that were decayed, re-potted in the same-sized pot, the stems all beside each other in the centre; so that what was in reality a number of plants were made to resemble one; the tubers and roots being extended outwards towards the circumference of the pot, like the spokes of a wheel; and well packed in a compost of equal portions of sandy peat and fibry loam, with a little charcoal and dried cowdung. After this manipulation a little shade was required, and this the foliage of the vines in general supplied. If that was not sufficient they were shaded in the heat of the day by other means, such as tissue paper, thin gauze, &c. As soon as the roots had taken hold of the fresh material, they were set in the light as much as possible, and well supplied with liquid-manures; not keeping long to the same thing, but giving weak manure-water at one time, soot-water at another, &c. They were removed to a cool glass house in June, well set with flower-buds. "Oh! but," say our friends with houses without fire-heat, "all this is Greek to us, for we have no fire-heat whatever to give." No, not quite! All that has been done in the present case may be accomplished as efficiently in a cold house, or a cold pit, *provided* you commence a month or six weeks later, by allowing or causing the plants to doze all that time longer—by placing any non-conducting medium over them, such as sawdust or moss, and then by a close atmosphere after potting; even employing a hand-light to set over them at times,—husband and make the most of the heat of the sun, which scarcely ever comes wrong, because accompanied with *light*. Those who have never tried it would be amazed to find how quickly things may be made to grow in a cold house or pit after the beginning of April, by merely giving little air, so as to enclose the heat from the sun's rays. It may be dunned into your ears, that you will ruin your plants from want of air—that they will get so lean and lanky as not to have a leg to stand upright upon; because heat expands the tissues—and these, if moisture can be got, will be inflated to bursting point with mere watery fluids: mere expansion being a very different thing from solid addition; and, as a proof of your friend's sincerity, he will point you to his pit or house, with air breezing gaily in by back and front—even though this air be somewhat nippy to the finger points, and then at night he will show you them closely shut up,—matted over, with dung linings steaming around them, or fires roaring beneath them—and all to keep his *proteges* healthy, stubby, and short-jointed!! Now, though aware that heat, however applied, in darkness, will make plants leggy—unless in extreme cases, which common sense would guard against, either by a little air or shading; there can be no such danger from heat derived from the sun, because the tendency to increased expansion and absorption are counteracted by increased evaporation—the decomposition of carbonic acid, and the consequent fixation of carbon or solid matter. As a general rule, therefore, our new readers will bear in mind that the highest temperature should ever be in unison with the brightest light.

Excuse the seeming digression—as I find I shall not now overtake what I intended to form the chief part of this week's subject. The remarks, however, will not be without profit, as a great many greenhouse tuberous plants may be treated in a similar manner, without half so much trouble. This plant may be grown in a cold pit or window, in the usual way, but then the specimens will not be such as to arrest and rivet attention. I must mention that since the plants were removed to their blooming quarters, they have several times been surface dressed with rotten cow dung.

However amateurs may cram their small houses in winter, in order to supply their flower-gardens, I think that a few plants of a large size would be more pleasing in summer. As one of these, because not obtruding itself in winter, allow me to herald this Begonia. As a companion, there is the *Salvia patens*,—a fine thing for beds it is true, but apt to be swept of its blooms by any wind, after the beginning of September. Treated in a similar manner to the Begonia, its azure blue is more delicate; it blooms abundantly and equally long. On one side might stand a large yellow *Calceolaria*, and on the other a monster *Scarlet Geranium*, and by the side of the Calceolaria, the *Unique Geranium*. Luxuriance and beauty would make ample amends for the want of rarity; not that the latter is not desirable, and should receive the greatest attention, but it alone will never compete with commoner objects when not well cultivated or unhealthy. Speaking of Scarlet Geraniums, I may mention that *Tom Thumb* is capable of swelling out to a very giant. The pink *Lucea Rosea* does in the house under glass, as it never can be made to do out of doors. In most situations it requires a sheltered shady place to do any good, and even then the flowers have neither the brilliancy nor the size they have when protected with glass. I shall say nothing of *Mrs. Judy* nor yet of *Mr. Punch* as bedders, because I have not sufficiently tried them, and the successful raiser of them may have more to say of their respective merits; but if Master Punch continues to progress with me as a pot plant as he has done this season, he will cudgel every other scarlet, kings and queens, and Tom Thumbs' out of the field. In cold greenhouses, to do even such common things as these well, advantage must be taken of every gleam of sunshine after March, and the heat it imparts be made the most of; and, after all, sun-heat is alike cheapest and best. R. Fish.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

Hoya.—In this genus are several very handsome interesting species. Some of the finest being lately introduced, a few remarks upon their culture may be useful to such of our readers as cultivate stove plants, we shall devote, therefore, this week's observations to the subject, commencing with that old favourite

Hoya carnosa (*Hoya*, in honour of Mr. Hoy, a remarkably clever gardener and cultivator of plants to the Duke of Northumberland, at Sion House; *carnosa*, fleshy, which is the character of the leaves). A native of Asia, with bunches of pink flowers.—This handsome inhabitant of our stoves for nearly half a century (it was

introduced in 1802), has leaves thick and fleshy; the flowers are produced in umbels, on short stems, sometimes as many as a dozen on a stem. In the centre of each flower there is, as it were, a drop of thick liquid distilled, which, if tasted, has the luscious taste of the finest honey, hence the plant is often called the "Honey plant." When the flowers drop off, the stems should not be cut away, as they have the surprising and unique propensity of producing from the same stem a second, or more, crops of flowers, often more numerous and finer than the first.

Culture.—Hoya carnosa is a plant of a somewhat succulent habit, and consequently requires a soil of a very open texture. A compost of fibrous peat, turfy loam, and some lime rubbish with broken potsherds amongst it, suits it well. It is a climber, and, therefore, may be trained in various ways. A circular wire trellis with this plant trained all over it is a very ornamental object. It also decorates a pillar handsomely, but the finest plant we ever saw of it was used to cover the upper part of the back wall of a Pine stove, which it did completely, and was for half the year in bloom. It was the finest covering for a blank wall we ever witnessed. It may also be cultivated in a basket, and hung up in the orchid house. In that situation its long slender branches hang down gracefully, and produce their beautiful flowers in abundance, and are more seen than in any other situation. So useful and ornamental can this plant be, that we wonder it is not more extensively cultivated. It has the advantage, also, of being in a great measure free from the attacks of insects, and is easily propagated. Cuttings of almost any size will grow in sand, if dried for a short time (two days) previously to planting. It will grow, also, from single leaves, but, excepting as a matter of curiosity, this way of propagating it is useless, because it grows so rapidly from larger cuttings. A good sized plant may be purchased for 2s. 6d.

Hoya imperialis (The Imperial Hoya).—This is, indeed, a noble plant, worthy of the utmost care and skill of the cultivator! Just look at the dimensions of one flower now lying before us. It is full three inches across, and the umbel from whence it was taken had ten of these large flowers upon it. The diameter of the umbel measures eight inches; the stem of the umbel is seven inches long; and the stem of each separate flower is four inches; altogether forming one of the finest umbels of flowers ever seen. The colour of the flower, indeed, is not so bright as a Scarlet Anemone, yet it is very pleasing. The calyx is five-parted, green, and very small for so large a flower. The corolla is also five-parted, forming a star-like appearance, each part is triangular-shaped and turned back a little on the edges; the colour is a reddish chocolate, shaded off in the centre with creamy white. The nectaries, five in number, are large and of a yellowish white. Between each there is a small dark coloured spot. The whole flower is highly polished and glossy, like ivory or wax. The leaves are as large as the leaves of the common laurel. They grow in pairs, are of a pale lovely green, and covered with silky down. Now, we would ask, is not this faithful description the picture of a fine, first-rate, desirable plant? We think it is; and our readers who have never seen it, and have the means of growing it, ought immediately to procure it, the price being now reasonable. 7s. 6d.

Culture.—This fine plant was discovered by Mr. Low, jun., growing wild in the woods of Borneo, in perhaps the hottest climate in the world, consequently it requires a warmer stove in this country than the preceding species. The *soil* it thrives well in with us is a compost of peat, loam, and leaf mould, made very sandy and well drained. It will thrive better if there is the convenience of a bark-bed to plunge the pot in in which the plant is growing. In that situation it will grow rapidly, and flower soon. Our plant is only two years old, and it has at present two umbels in flower, and several others showing; and no doubt would have been much larger had it had a bark-bed to stimulate its growth still more. However, it will encourage those who have not the convenience of a bark-bed to grow it in to cultivate so noble a plant. It strikes easily; for incipient roots may be observed appearing on the stem of the plant. Short shoots with two leaves make the best *cuttings;* place them singly in thumb pots, chiefly in sand, under a hand-glass, and in a fortnight they will be rooted, and may then be hardened off gradually and repotted. As it is a climbing plant it may either be trained to a trellis, or, which is the best method, may be trained along the roof of the stove. In that way it shows off its fine flowers to the greatest advantage. It requires moderate supplies of water even in summer, but in winter very little will be sufficient.

Hoya bella (Pretty Hoya).—As the *H. imperialis* is one of the most noble of noble plants, so this is the prettiest of all pretty ones. It has been called "an amethyst set in frosted silver," and that is a just description of it. It is a dwarf species with small leaves, and an umbel of flowers no larger than a single bloom of the preceding species, yet, though so tiny, it is a gem of a flower, and both on account of its taking up so little room and its exquisite beauty ought to be in every plant stove in the empire, however small. The corolla is nearly of the same colour, but whiter, as the old *H. carnosa*, but the nectaries are of a pleasing amethyst, or violet colour. The contrast between the two sets off each to the greatest advantage. We can confidently recommend this beautiful little plant to our readers, as being well worthy of their care and attention. The price for tolerable good plants is 7s. 6d.

Culture.—It requires a rather particular mode of culture to grow and flower it well. It is a native of Java, and was introduced to this country by Messrs. Veitch and Son, of Exeter, through their diligent and successful collector, Mr. Lobb. Coming from such a warm climate it requires the warmest part of the stove. It will grow and flower well in a pot in the ordinary way of culture, but thrives best in a basket hung up near the glass. The best flowered specimen we have yet seen was grown by that method. The basket was filled with rough peat and half-rotted leaves mixed, with broken potsherds in very small pieces mixed throughout; managed in this way the branches droop gracefully over the edges of the basket; and if hung up so as to be near the eye, the flowers are brought nearer to the sight than if grown in a pot, because in the latter situation the eye only sees the back parts of the flower, and it has to be lifted up before its beauties can be seen. This is the only species of Hoya, that we know, that is not a climber, and so requires no trellis to support it or train it to. It has also the advantage of having a delightful perfume, especially in the morning; and so possesses at least two of the grand properties desirable in all plants—beauty of flower and sweet scent. Like all the tribe it is easily propagated by *cuttings*. Short shoots put into pots, half filled with the compost, and the top part with sand, strike readily under a hand-glass in heat; and after roots are produced, they should be potted off in very small pots; and as soon as the pots are partially filled with roots, repotted into pots a size larger, and so on till they are fit to place into the baskets.

T. Appleby.

(To be continued.)

FLORISTS' FLOWERS.

We cannot too often reiterate to our amateur florist friends the necessity of watching the "seasons as they roll," and taking care to provide for the well-being of

the plants in their possession at this untoward season of the year. Damp weather, frosty nights, succeeded perhaps sometimes by drenching rain, and sometimes by bright sunshine, all require careful attention to prevent evil effects from such sudden changes.

Auriculas and *polyanthuses* should now be in frames or pits facing the south; the glass should be kept on in damp, foggy, or rainy weather, and air given freely by lifting the lights behind. In sunny weather the lights should be drawn entirely off, to give them the full benefit of such cheering weather. Do not forget every morning to look for the trail of slugs, and if any are perceived, seek for them till they are discovered in their hiding-places and destroy them. Very little water is required now, and that in moderate quantities and given in the fore-part of the day. *Carnations* and *picotees* ought now to be all potted and placed under frames,—watering them just enough, and no more, to prevent flagging. *Dahlias* must now be all taken up and stored away. Late-struck cuttings continue under glass, to induce the formation of small bulbs; they often make the best plants for the succeeding year. *Roses*.—Now is the best time of the year to procure additions to the stock already growing. Early orders always secure the best plants. Plant, stake, and mulch with short litter, and they will grow much better than later-planted ones.

T. Appleby.

THE KITCHEN-GARDEN.

Asparagus.—If not already cut down and the ground cleared of weeds and refuse, the asparagus beds should now at once be attended to. We do not recommend the stems being cut down until they have begun to turn yellow, and the ground between the rows should, after clearing, be immediately well forked over, leaving the surface rough and loose. Those who intend to top-dress may take the earliest opportunity of wheeling on a good dressing of good strong manure of any kind that they have to spare. Our system is, to lay a few boards between two of the rows at a time, on which to wheel on the manure, so as to prevent trampling upon the ground, and we shoot the manure out of the barrows right and left; by which means we manure the space of two rows at once. Spread and fork it in immediately on each side, taking care that all is in some way covered with earth, and that the surface earth is left open and rough. Never since we have had the superintendence of asparagus planting have we practised the four-feet-bed system, but we choose a good piece of ground, which we manure and trench well in in the winter season, and form it into ridges as rough as possible, forking it over frequently when frosty mornings and dry weather prevail; and either sowing the seed in drills at two feet apart, or planting one-year-old plants at the same distance. After having been established for two years, every alternate row is carefully taken up for forcing; thus leaving the plantation in rows four feet apart, between which, after the asparagus season of cutting is past, and the stems have grown to their natural height, a row of late cauliflowers is planted, which being thus partially shaded throughout the months of August and part of September, seldom fail to succeed well; and as the asparagus is at that season well supplied with liquid manure and salt, very little exhaustion is caused by the row of cauliflowers planted at that distance. We never practice the earthing-up system or the covering the crowns of this esteemed vegetable any more than is rendered necessary in the application of manure, as we do not approve of the stifling method of blanching the shoots. Take care that a little of the best seed is put by out of the way of mice at this season for sowing next spring.

Coleworts.—Should any strong colewort or savoy plants be remaining, and should there be any spare corner of ground, or any room between the rows of currants, gooseberries, or raspberries, they may still be planted for coming in useful next spring; for it is sometimes found that late planted vegetables of this kind will stand better than others the severity of the winter.

Cauliflower Plants.—Those who adopt late sowing should now, as soon as the young plants become strong enough, commence pricking them into the small two-and-a-half or three-inch pots, and at once plunge them into light soil close to the glass, which may be kept over them for a few days after their being fresh potted; and as soon as they may be considered to have thoroughly taken root, give air freely night and day, always taking the lights entirely off on every fine day.

Cabbage Plants in every stage of growth should have the soil about them often stirred; and where only a few thousands are planted, all decayed leaves may be collected, and neatness be maintained with very little trouble.

Onions.—Those onions in store, as well as all other root crops, should be occasionally looked over, selecting those that are in any way decaying. Underground onions and shallots may now be planted, and onions should also now be selected for seed.

Mushroom Beds.—Make these in succession, as previously directed, by collecting good stable manure, with which half-dried sheep or deers' dung may be advantageously incorporated. Sufficient maiden loam should also be added to modify the heat and moisture which will otherwise carry off the most valuable properties of the compost. The beds should be well trodden or rammed down when the material is in order for forming them, and they should be spawned when at the temperature of 85° or 90°, and be at once cased with about two inches of good holding maiden loam, in order to retain a proper degree of heat. Where the beds are made out of doors, or in open sheds, a moderate covering will be necessary, which should be of a kindly mulching nature. If wood lice are troublesome, shake over the litter, sweep out the dusty short material clean, and, previously to the mushrooms showing, apply over the whole surface of the bed and other parts of the shed, if in a shed, boiling water from the rose of a watering-pot. This will not only effectually eradicate these pests by its application once or twice, but will also greatly assist the working of the spawn. James Barnes.

MISCELLANEOUS INFORMATION.

SCALES OF EXPENDITURE.

By the Authoress of "My Flowers," &c.

ESTIMATE 4TH.

INCOME—5s. per day; 30s. per week; £78 per annum.

FAMILY—A man, and his wife, and three children.

	£	s.	d.
Bread and flour for five person, 24 lbs.	0	3	6
Butter, 1 lb.	0	1	0
Cheese, ½ lb., at 6d.	0	0	3
Milk	0	1	0
Tea, ¼ lb., at 3s. 6d.	0	0	10½
Sugar, 2 lbs., at 4d.	0	0	8
Grocery—including table condiments	0	0	9
Meat, fish, &c.	0	3	0
Vegetables	0	1	3
Beer	0	2	0
Coals and wood—average all the year round	0	2	0
Candles	0	0	4
Soap, starch, &c., for washing	0	0	4
Sundries, for cleaning, scouring, &c.	0	0	2
Total for household expenses	0	17	1½
Clothes and haberdashery	0	5	0
Rent	0	3	0
Incidental expenses	0	1	0
Total expenses	£1	6	1½
Saving (more than 1-12th)	0	3	10½
Amount of income	£1	10	0

The writer makes the following observations upon this estimate:—"We have to observe, respecting this estimate, that it is practically correct, being almost a verbatim transcript from an account kept for the last year." The estimates were first published in the "New Edition" in 1824, "by a steady person on whose accuracy and veracity we can rely, and differing only a few shillings in the whole year from what we should have given as the result of our own calculations. . . . . It is deserving of remark, that this family, though possessed of so slender an income, appears to live comfortably: doubtless, from the regular mode of conduct which it has habitually acquired."

Every thing is cheaper at this period than at the time "Practical Domestic Economy" was compiled, especially all articles of clothing, which, where children are concerned, is a very material thing. When the correctness of calculations are proved by actual experience, it is a very great encouragement to anxious and *determined* economists—to those who *will* do what can be done, and whose inexperience and, perhaps, ignorance, alone, keep them from attempting to carry out economy fully. Some there are, and even among our own highly-respected correspondents, who shrink and draw back from the *loppings* and *pruning*s we have suggested to them. A letter received in July contains the following passage:—"I fear, for the reasons assigned, I must still charge myself with the expense of the garden, the man, and the pony. But if these are not to be renounced, well may it be observed that the difficulty is greatly increased; and how, indeed, are we 'to trim and steer our little bark among the rocks and shoals of a pitiless world?'"

I am grieved and yet glad (if a contradiction may be pardoned) to reply, that the "reasons" are only *excuses*. A reason is a stubborn thing, but an excuse—however it may be decked in borrowed plumes—possesses neither bulk, solidity, nor extension, and of this nature are the apologies made for retaining the luxuries above-mentioned. I am *grieved* to be obliged to speak thus strongly, but where so much is at stake, and the remedy so distasteful, a timid hand will effect nothing. I am *glad* to think that each of the three luxuries is absolutely unnecessary, and that the comfort derived from them is as nothing compared with the pleasure of feeling that no gratification is allowed, however much like a necessity it may array itself, that we are cutting off a decided expense, and feeling a decided relief from it; and that, although our personal inconvenience may soi increase, our little bark has again answered the helm, scudding before the gale under bare poles indeed,—bi safe and snug below. Let us keep our eye fixed on unerring Compass; and then, although "neither s stars appear for many days," and "no small tempest l us," yet a Comforter will ever stand by us to cheer u strengthen us, and to make the disagreeables of life, as its heavier trials, easy and pleasant to be borne.

The position of our correspondent is one of mu culty, as regards his residence. Would it not be pos accommodate another family, or single individuals, junction with his own household? A landlord migh scarcely could—object to this, and with a little good n ment a very comfortable arrangement might be ma so pleasant as living by ourselves in our own ho under existing circumstances, and for a limited peri ferable to high rent, anxiety of mind, and debt. No of pride should be allowed to utter, or even whisper, a on such occasions as these. Children are rising up and must be sacredly considered and served by every honest effort in the parent's power. Almost the ren house may thus be gained; and what an important b this, even at a heavy inconvenience to oneself, whic may not be the case! In towns, professional me require rooms with partial board, sometimes with board at all; and gentlemen are more easily dispos a general way, than ladies, and are more constantly from home. To lessen a heavy rent is a grand desid and will do more for us than all the pinchings and r we can possibly resort to in the home department. urge this plan very strongly to *all* who are over-hou over-rented, and cannot help themselves; and le when they are fairly wearied with exclaiming agai horror and impossibility of such a system, quietly whether it is impossible and dreadful, whether the not effect it without immense suffering; and whethe periods of half-yearly payment, they would not feel u able relief at finding perhaps more than half th paid back into their hands.

In the hasty, ignorant impetuosity of youth, a t things there are that we cannot away with—a t things are "dreadful—impossible to be done;" and w about and chafe, like a colt caught up wild from the but when we have attained the age of reason—sti when we have children clinging round us—above a we feel that they are entrusted to us by God, and a sacred duty to provide for them as amply and as d as His Word permits—we shall renounce every fe pride and selfishness, and strive without a murm that which *ought* to be done.

WINTERING BEES.

SINCE I forwarded my first prepared table to be by those who wish to try one or other of the unusu of wintering bees, recommended by me or others, n tion has been drawn to one or two other metho deserve notice, although their results in an economi of view are, perhaps, not likely to be so valuable particular instances mentioned by me in a forme They seem, however, to be less hazardous, and woul mend themselves to many who might be too timid to a trial of the others. I think it is Mr. Richardson his shilling book, "The Hive and Honey Bee," 2nd (an edition far superior to the first), suggests a ver contrivance for the ventilation of hives stowed awa gravel or leaves in a barn or outhouse. It is a lo of wood, covered over with plates of perforated zinc structed that a current of air shall pass throughout i length underneath the zinc. Upon this frame the placed side by side (any number of hives of wood according to the length of the frame, may be so w

and covered over to some depth with earth, gravel, cinders, dry leaves, or any other available material. Care must be taken of course to allow a free passage for the air underneath, by leaving open the ends of the frame. If hives be thus treated, let them be stowed away in some unfrequented room, loft, or outhouse, where there is an absence of all noise or concussions of any kind. A floor of wood is bad, because every foot-fall will disturb these insects, who are extremely sensitive of touch—the slightest concussion being enough to arouse them. This evil might, perhaps, be obviated by resting the frame on a substratum of sand, or on bits of flannel rag. This plan of Mr. Richardson is admirable, not only because of the perfect *ventilation* it affords, but also as facilitating the *running off of any condensed vapours* which might be engendered in the hives by the bees' perspiration. I have thought that the *suspension* of hives by a stout rope from the beam of some *dark, cool, dry,* and *well-aired* barn would answer the same and equally well, while nothing could be simpler. They should be hung up out of the reach of mice or other vermin, to be effectually closed against their possible intrusion. Mr. Cotton, of old, recommended tying up hives in cloths, and thus hanging them; but this I am persuaded must be bad, both from the imperfect ventilation, and because the cloth would catch and *retain* the moisture, which it is so important to get rid of. My plan is to suspend the hives in a plate of perforated zinc, in shape like the scale of a balance; or still better, perhaps, suspend them on their usual bottom-board, out of which, in the centre, has been cut a square hole, from four to six inches in diameter; underneath this a slide of perforated zinc might be arranged in a groove, which would answer all the purposes of ventilation, and afford facilities for the occasional sweeping out of any dead bees or accumulated filth during the winter. One or other of these two plans I would recommend, in preference to any other, to those who *fear* the burial of bees as too hazardous an experiment, or hold that *air* is *essential* to their well-being in winter.

There are some persons (and among them bee-keepers of much longer experience than myself) who maintain, that not only *air* but also *exercise* is necessary to the same end. To a certain extent I agree with them. I allow it: for instance, where bees are so situated as to be *tempted* to take exercise in winter, as they are when hives are suffered to remain on their summer stands, *or in the open air at all.* In the former case it is not uncommon, in our variable climate, for a change of 20 *degrees* (as when the sun shines) to occur in the external temperature within a very few hours *even in January;* and though, perhaps, such change is not so great where bees are wintered in a northern aspect, it is still often sudden and considerable. Here, of course, the insects must naturally awake from their winter slumbers and be tempted into the open air, and it is good for them, doubtless, so to do; although in so doing, on such a day as I have described, they would consume, each hive probably, not less than from three to five ounces of food. Confinement, under such circumstances, would probably be fatal. Where, however, the hive is so placed as not to feel these sudden and great changes, I am persuaded the bees will remain in good health and in a state of torpidity for a very long time, and be no more incommoded by a three months' than by a three weeks' imprisonment. My theory seems to me to be sound, and to be borne out by those remarkable and *well authenticated* instances on record, in which *interment* of bees has been tried with success for such long periods. I do not believe that even a great amount of *cold* is required to throw bees into this inactive state. On dark days, with an external temperature of 53 degrees, and even upwards, my own bees seldom stirred last winter until they had been fairly aroused by repeated warm suns in February; and *now* my *old* hives can scarcely produce a single forager, except on very tempting days. I confess, taking all these things into consideration, I, for my part, am very sanguine of success; the issue, however, will determine with what reason.

I have another theory on the subject moreover, namely, that bees gain an *extension of just such length to their naturally short life as they pass in a torpid state in winter.* If this be correct, here is another most important argument in favour of my scheme.

That bees do not require exercise in winter seems to be acknowledged, in the winter management of their apiaries, by the bee masters of Poland, who regularly shut up their bees for five months every year. A late Polish writer on bees (whose work, however otherwise interesting, recommends to us a most *un*recommendable plan of bee management, as far at least as concerns the method of *harvesting the honey*—may I never know the taste of Polish honey! forbid it, ye gods!) states, if I understand him rightly, that from about the middle of October to the beginning of April, *every* cranny and chink ("slits," he says) is carefully stopped up with clay, including the entrance of every hive, so that not a bee can, if he would, stir abroad in all that time.* Now, it is no objection to say that the winters of Poland are more severe than ours, because by the peculiar construction of their hives the inclemency of the climate is effectually withstood; a suitable temperature being kept up within, not much, if at all, lower than that which would probably be secured by one or other of the new methods proposed by me. I believe, however, that it is not so much a very cold climate as a very equable temperature that is favourable to an economical winter treatment of bees.

I may seem, from the strain of this paper, to recommend the suspension of hives in preference, generally, to their interment. If so, I am misunderstood. Let the hives only be buried in a dry situation, and this plan offers as many advantages as any other; not, however, in a hole filled with leaves, as it has been suggested, for these, methinks, must naturally heat and rot under-ground, and occasion the very evil we wish most to avoid. A good thick coating of straw, a gravelly or strong soil (whether artificial or natural), a north aspect, and a shady though dry situation, these alone are requisite; and the hives may be buried at a depth of from two to five feet, on a rubble (and well drained) substratum. The best time for *wintering* will offer with the first sharp frost in October, and for *disinterment and restoration to their summer stands,* with the first day in April which promises to be warm and sunny *throughout.*

I should be greatly obliged to those of your readers who are disposed to copy out for their own use the table furnished in your 103rd number, if they would distinguish their several experimental hives in the first column by the letters A B C, and so on; also, state in the second column how much food and comb was allowed to the bees which they preserved (if any): in the fourth, any peculiarity of experiment differing from those there specified, as well as the *depth,* if buried in the ground; in the fifth, the general character of the winter; and add two more columns at the end, stating in one the aspect and situation in which the hives were buried, and in the other the system of ventilation adopted. We shall thus have a uniform report from every experimentalist, and be better able to judge of the causes of success or failure. Any further observations will also be very acceptable.

In conclusion, I am happy to say that I have already received applications through you from seven or eight quarters for my table, which is an encouraging sign; but I shall not be satisfied unless I get as many more papers in the spring from individuals who have listened to your public as well as to my private invitation to join me in my experiments.

P.S. Since writing the above, I have observed in your paper of to-day (Sept. 26th) the remarks of "An Old Bee Master" on my former communication. At the hazard of being considered tedious, allow me to make a few observations in reply. I am glad to find that he speaks undoubtingly as to the desired *result* of hive interment, but I cannot see where the great *expense* lies which he seems to deprecate in my proposed experiments. Surely the cost of a small tube or plate of zinc would very little exceed that of such a screen as he recommends; seeing, moreover, that that screen, however it may check the egress of the bees, will very little hinder the consumption of honey; i.e., where hives remain in a sunny aspect; because the temperature of the atmosphere surrounding the hives will be raised many degrees every warm day, and this must affect their interior; neither do I hope that many will be found to complain of the little additional *trouble.*

Your correspondent, however, suggests a very good plan of wintering bees (which I had purposed to add to my table of experiments) in recommending their removal to a *well-*

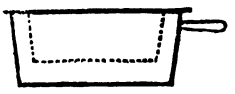
* They seem thus to exclude *air* from the hive, as well as to confine the bees!

sheltered north aspect. I would further advise, that the situation also be a *dry* one. We have the testimony of Mr. Nutt and others in favour of this plan, who has shown, if I mistake not, that the consumption of honey is reduced by at least *a third* in comparison of what it would have been in a summer station. As to the *permanent* position of an apiary northwards, I may mention that its desirableness had before occurred to my own mind; so that when looking out for a place where to bestow two artificial stocks, which some lady friends of mine proposed to establish according to my plan about six weeks ago, we fixed upon a granary window having a directly north aspect, and looking down upon a yard well sheltered by tall trees. Both hives seem to be doing well in this place, although I certainly think they would have eaten more food than they have done, if a hot sun had shone on them for a few hours every day. I cordially join in "An Old Bee Master's" prayer for assistance in his schemes, while, at the same time, I promise to inform him of the result of my experiments of the same kind.

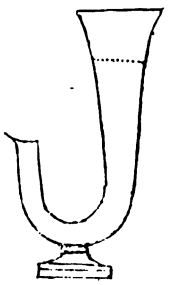
A COUNTRY CURATE.

DOMESTIC MECHANISM.

CHEESE PAN.—In preparing toasted cheese—whether used for Welsh rare-bits, as the Yankees call them, or "rabbits," or for one or other of its varieties—it is exceedingly difficult in all cases to procure it fairly and equally run—the edges and thinner parts frequently getting crisp or burnt, which in the opinion of epicures rather deteriorates the "value of the article." To obviate this difficulty the following contrivance has been adopted—or adapted, for it is merely on the principle of the common glue-pot—and very largely used: it is, we believe, admirably calculated to prepare melted cheese in high perfection. A tin pan of any convenient dimensions, as shown by the thick outside lines, is provided, into this another pan, shown by the dotted lines, fits; it is made of less dimensions, so that it shall hang clear. Into the larger pan water is placed, which, surrounding the inner pan, boils and melts any material put into the latter. Care must be taken to have the lesser pan fit tightly into the larger; and the lesser pan must be provided with a close fitting lid.



IMPROVED TABLE FILTER.—A mere glance at the annexed figure will show the arrangement. The filtering material—a sponge placed, for instance, in a linen bag—is placed at the dotted line near the top; the water passes through this into the lower part of the vessel; the level being the same in both limbs, by merely tilting the vessel slightly on one side, the filtered water may be poured into any convenient vessel by the lip at the top of the lower limb. The filtering material may be placed further down the taller limb than is shown in the sketch. If made of zinc—a very excellent material, the outside of which may be ornamented to any degree of elaborature—the filtering material might lie in a plate of perforated zinc, instead of being in a bag. Gutta percha would be an admirable material, and susceptible of the highest ornamentation. We have no doubt that by addressing a note to J. B. Smithies, Esq., Gutta Percha Company, London, he would give all information as to the price for which he would make one.—B.



NEW AND GOOD DAHLIAS FOR 1850.

Consolation (Meillez); vermilion scarlet; fine shape and habit. 10s. 6d.

Duke of Cambridge (Fellows); silvery lilac, constant and good habit; 3 ft. 7s. 6d.

Earl Clarendon (Union); novel; mottled orange; good shape; 3 ft. 10s. 6d.

Fame (Turvill); shaded plum, large high centre, and constant; 3 ft. to 4 ft. 10s. 6d.

Flora (Cook); red, with small bronze tip; extra fine form. 10s. 6d.

Gaiety (Dodd's); yellow edged and mottled with red; very showy, large, open petal. 7s. 6d.

Magnificent (Keynes); novel; shaded rose; fine form and very constant; 4 ft. 10s. 6d.

Mrs. Seldon (Turner); bright pure yellow; good petal; flower very circular, full size, extra fine; first-class certificate at Birmingham; should be shaded when young; 5 ft. 10s. 6d.

Palladium (Batteur); beautiful amaranth. 10s. 6d.

Primrose Invincible (Dubras); fine primrose, of good shape, and constant. 10s. 6d.

Premier (Legg); dark purple; fine form. 10s. 6d.

Queen of the Isles (Skynner); white, distinctly tipped with deep crimson; very striking and beautiful, the petals being smooth and well arranged. Exhibited at Cambridge and Norwich in twelve blooms, and obtained the highest award. 10s. 6d.

Queen of Lilacs (Turner); pale lilac; full size; fine form; and noble show flower; 4 ft. 10s. 6d.

Seraph (Fellows); bright novel orange; compact fine form; a very constant flower for exhibition, requiring good growth, and to be disbudded freely. Obtained a first-class certificate at Norwich; 3 ft. 10s. 6d.

Sir F. Bathurst (Keynes); dark crimson; fine form and constant; 4 ft. 10s. 6d.

Snowflake (Dodd's); veined or pencilled white; a novel kind; 4 ft. 10s. 6d.

Snowball (Barnes); an excellent white and good quality. 10s. 6d.

Thames Bank Hero (Robinson); deep crimson, full size, and constant, with a good form. 10s. 6d.

NEW FANCY DAHLIAS.

Admiration (Batteur); yellow buff striped and spotted with carmine; large and fine. 10s. 6d.

Carissima (Salter); white, striped with lilac and rose; very distinct. 10s. 6d.

Carminata (Paris); rose-edged and tipped with white. 7s. 6d.

Dandy (Barnes); salmon scarlet tipped with white; constant and unique. 7s. 6d.

Elect (Barnes); nearly black, tipped with white. 7s. 6d.

Elizabeth (Prockter); blush, with pink edges; good shape. 10s. 6d.

Floral Beauty (Whale); white and rich dark crimson; good and constant; 3 ft. to 4 ft. 7s. 6d.

Flying Dutchman (Dodd's); red and white; 3 ft. 7s. 6d.

Giraffe (Liddiard); purple and white; large and fine habit; 4 ft. 5s.

Highland Chief (Keynes); salmon, tipped with white; curious and beautiful; 4 ft. 7s. 6d.

Jeannette (Fauvel); red and carmine, tipped with pure white; extra fine shape and habit. 10s. 6d.

Lady Cullum (Barnes); yellow, tipped with white; fine. 10s. 6d.

Lady Grenville (Bragg); red, tipped with white; constant good shape; one of the best; 3 ft. to 4 ft. 10s. 6d.

La Rosiere (Batteur); rose, striped with crimson; fine shape. 10s. 6d.

Madame Bresson (Dubras); nankeen, tipped with white; extra fine shape; one of the best. 10s. 6d.

Miss Compton (Liddiard); salmon scarlet, tipped with white; fine form; full size; 3 ft. to 4 ft. 10s. 6d.

Mrs. Labouchere (Turner); scarlet, tipped with white; very striking and constant. 7s. 6d.

Mdlle. Basseville (Batteur); creamy white, striped with crimson; good shape and habit. 7s. 6d.

Picturata (Barnes); cream, margined with scarlet; a novel colour. 7s. 6d.

Princess Helena (Turner); red and white; large. 5s.

Reine du Jour (Batteur); orange, striped with crimson; large and good shape. 10s. 6d.

Rowena (Tassart); nankeen, tipped with white; fine form. 10s. 6d.

Unique (Turner); red, tipped with white; fine form; 2 ft. to 3 ft. 7s. 6d.

EXTRACTS FROM CORRESPONDENCE.

Potatoes: Heating by Hot-water.—You were kind enough to furnish a description of *Rylott's Flour Ball Potato* in a late number of your interesting Cottage Gardener. I have to tell you that an acquaintance in this neighbourhood has been eminently successful in its cultivation this season, many of his plants having produced 40, or more, at a root, and a single potato which he brought me weighs nearly 7 ounces; this leaves *me far behind*. My Cheshire friend already alluded to, sent me some specimens of *Fox's Radical Potato*, weighing about six to the pound, of which he had a splendid crop this season, the produce (large and small) 26 to 36 at each root, and in one instance, the *enormous quantity of 74 tubers at one root*. I never heard anything like this before, but have no reason to doubt its correctness. If you will not call me troublesome, I will ask what is the construction of the "polmaise" apparatus for heating apartments, eulogised so much by your Tirydail correspondent! I never see any allusion in your columns to the plan of heating greenhouses, &c., by *boiling the water in the pipes*, the latter not more than 1 inch inner diameter, arranged in 10 or 12 coils round the inside of a square brick-built furnace or fire-place; the lower end of the pipe carried into the house along the front wall, which it traverses six times; the upper end of the pipe conveyed into the house along the back wall, which it traverses six times; the ends of the two pipes terminating in an expansion tube, situated at the far end of the house, and furnished with a kind of safety valve. The pipes in traversing the interior of the house, are hung with a few cast-iron troughs, into which water is occasionally poured; the hot pipes in passing through these little troughs supply the house with a moist atmosphere whenever required. I have never in my travels, seen any hot-water apparatus on this construction but one, this was at Macclesfield, some 14 or 15 years ago, and it then appeared to me the *most efficient of any I had ever seen;* the house was not large, yet it contained a choice collection of rare and interesting plants, all in a healthy vigorous state, and many of them natives of the tropical regions; the following were amongst the number: Nepenthes Distillatoria, and Dionœa Muscipula (both in flower), Laurus Camphora, and Cinnamomum, Coffœa Arabica, Thœa Viridis, Gossypium Herbaceum, Saccharum Officinale, Zingiber Officinale, Maranta Arundinacea, Sagus Farinifera, Ficus Elastica, some beautiful orchids in flower, grown on blocks, besides a multitude of young plants, and others (full-grown), as many as the house could accommodate, sufficient to prove the adequacy of the system, yet, I never hear it named now. It would be interesting to know *why* a plan, apparently so effective, has not come into general use; perhaps you can tell us something about it, if not, I will tell you as much as ever *I* can about it, and finish the rough sketch I have given (with your permission, of course). The hot-water apparatus alluded to was at T. Brocklehurst's, Esq., The Fence, near Macclesfield. I cannot tell whether it is still in use. I omitted to state that the furnace was placed on a lower level than the point where the pipes entered the house, which ensured a continuous return of the water into the furnace as it got some degrees cooler; also, that the pipes were all made of wrought iron, excepting, perhaps, the expansion pipe, which I think was cast iron.—W. L.

Contrast of Flowers.—I have an accidental mixture in my garden, which I am led to recommend to your readers on account of the striking and pleasing contrast of colours. I have some *Tropœolum canariensis* rambling round the base of my windows, about a foot from the ground; and I see that some *Scarlet verbenas*, planted in the grass below, have climbed up amongst the Tropœolums, and I assure you produce a most agreeable contrast.—W. K. W.

Rats.—The following is found very effectual in destroying them:—Rye-flour, three parts; lime, in powder, one part: mix, put it where they frequent, and place water near to it. They eat it greedily, and run to the water, which they drink till they burst, frequently on the spot.—Verax.

Good Way to Keep Preserves.—Put powdered loaf-sugar on the top; cover with tissue-paper dipped in the white of an egg: when this is dry it becomes like a bladder. Your plan of the pasted paper is good, but this I think still better.

Brompton Stocks.—Allow me to say, in reply to your correspondent (F. W. T., page 230, July part) respecting Brompton stocks, that I have grown them for some years without any protection during the winter, and that even with leaving the side shoots on. I have had the centre bloom over 16 inches in length. The seed (which I save myself annually) I sow the last week in May or first in June upon a south border, placing a hand-glass over it, or some pea-sticks, to prevent the birds scratching it up. When ready for pricking out, which is in about a month, or when the plants are three inches high, I place them about the garden as I find I have room for them, either singly or in threes (for my garden is very small), in which places they remain until they bloom the following summer. A very hard winter will sometimes cause the lower leaves to turn yellow and fall off, but I have never yet had a plant killed, and I do not even protect their roots with ashes or other dry material. When three are planted together, and I find one single and two double, I leave them *all*, thinking the bees passing from one to the other may improve the seed.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

Heaths for August and September (*J. S.*).—*Red.*—Grandis (new), Ignescens, Erubescens, Cruenta, Vestita rosea. *Pink.*—Wilmoreana, Linnæoides. *Orange.*—Nodiflora. *White.*—Bowieana, Monsoniana, Reflexa alba. *Yellow.*—Vestita lutea, Flava, *Purplish*—Lucida, Nitida, Vestita purpurea, Hartnelli, Translucens. The Mitrana will suit you, but more anon.

Melon Plants from Cuttings (*J. M. K.*).—These are generally raised from the earliest bed, and then treated just as seedling plants—only they may be planted thicker. The *quantity* of fruit is generally greater, but unless well watered, or well thinned, the specimens will not be so large. Mr. Errington will very likely allude to it in good time.

Heaths for Sitting-rooms (*M. S.*).—We fear you will not succeed without great care. It is the confined air, the dust, and the heat at night that will ruin them. See list above.

Tropœolums (*Ibid*).—We cannot conceive how your plants do not answer. There is such a difference between them—the Nasturtiums are termed *Tropœolums*, and so is the Yellow Canary Plant. Do you mean the small-growing ones, such as Tricolorum and Pentaphyllum? Send a small bit, and we will oblige you as far as possible.

Mandevilla Suaveolens (*M. S.*).—This plant is not particularly subject to green fly or other insects. Have you got it planted in good loose material? You must not mind a dose of tobacco smoke for once. Open the doors in the morning, and burn any sweet smelling herbs, and you will scarcely perceive the reek of tobacco. Many plants are troubled with insects at times, under the best culture. We have to-day observed a few on the Mandevilla, the first time for years.

Colchicum (*F. P. S.*).—This may be planted immediately in the open border.

Gladiolus Communis (*Ibid*).—So you may this, only place it a few feet from the edging.

Amaryllis Longifolia (*Ibid*).—Not quite sure of it; but you will not err in planting it in a dry sheltered place; at least nine inches deep in front of a south wall, or keep it in the house, which perhaps would be best during winter.

Hollyhocks and Cactuses (*G. A. B.*).—All your Hollyhock seedlings will flower next year, exactly the same as they have done; perhaps a trifle better. Your Cactuses ought to be under shelter when you wrote, to avoid late rains and early frosts.

Roses for Trellis (*Philanthe*).—You will find a suitable list at page 13 of our last volume. You will find all the information you seek for, if you will refer to our indexes.

Sea-kale (*Philocarpus*).—If you propagate this from suckers of the old plants, the best time for so doing is in March or April; but the finest and most productive plants are raised from seed sown now. The plants must be two years old before they are blanched. Root-pruning *strawberries* is very bad gardening.

Bees (*G. J. B.*).—"I purchased a hive this spring, which swarmed twice; the first swarm having threatened to swarm itself, I foolishly put a bottom straw eke to it to prevent them. I find now, from a neighbouring bee-keeper, that I have done wrong, as it only weighs now about 15 pounds; and he says the bees will have to fill the empty comb next

year, and will not swarm. [*He is quite right.*] The comb is nearly to the bottom of the board, and, consequently, part of it is joined to the eke. Would you recommend me to take the eke off now, if practicable? As this has been a bad bee season in this neighbourhood, my old parent hive, weighing below 20 pounds, and both, are daily getting lighter. In order to preserve them, I have commenced feeding them. May I continue to do so until the frosts set in? If so, how often a week?" By all means take off the eke, and do it in the middle of a fine day; treat the bees with a few puffs of tobacco-smoke in at the mouth of the hive, then turn it very gently upon its sides, placing it so that the combs are *perpendicular*; then, with a short knife, commence cutting out the combs as far as the eke reaches; all may be done in three minutes; if the bees are fierce, give a little more tobacco. Go on feeding as fast as the bees will take it until they have 20 pounds stored. Mr. Payne will send you a hive with pleasure; but please apply to him at the time you require them, and send him the money first.

Lobelia Erinus, &c. (*Verax*).—The nurserymen's lists say the truth about *Lobelia erinus* and *Erinus grandiflora*; both are perennial and half-hardy. There are many varieties of them, which require to be perpetuated by cuttings, as their seeds do not always reproduce the true parent. *Compacta* must be raised from cuttings, as it is more variable from seeds than any of them but *Erinus*. *E. grandiflora* comes true from seeds. March is the best time to sow all of them.

Campanula (*Ibid*).—To be sure there is a fine, hardy, deep blue dwarf Campanula; the name is *Carpatica*; and there is a snow white variety of it; both fit for everybody. We have described and recommended them repeatedly, and we thought all our readers knew them, and recollected what we sung to their praise.

Lantana Sellowii (*Ibid*).—This also we spoke of repeatedly, and not long ago. It is a little purple bedder, strikes in the spring as freely as a verbena, flowers all the summer, can be taken up and potted from the frost, will also come from seeds sown in a hotbed in March or April.

Ixia Bulbs (*E. Jonas*).—About three weeks past you planted these, and they are now about two inches out of the ground. Cover the ground over them with two inches of leaf-mould or coal-ashes, and cover them well in frosty weather with two thicknesses of mats, or, if you can, with boards; the covering to be removed every fine day.

Flower-Garden (*A Young Gardener*).—Your design is very pretty indeed, and if it is your own conception you must be "brought out." Let us hear from you confidentially, giving your address. Your list of plants is very suitable, but you will improve on it next year when you see the effect of your present plan.

Scarlet Geraniums (*G. E., Westmoreland*).—Mr. Beaton will write something which will answer your purpose.

Water Lily (*F. H. Earle*).—A water lily will grow in your three feet square tank very well. You ask the depth of water necessary: it should be at least 18 inches deep, especially as you intend using it for watering; there should be also four or five inches of mud at the bottom, for the lily to root into. Fresh water every time you take any out will be very beneficial to your plant.

Damson Wine.—We have received this recipe, for which we are obliged:—"To every gallon of water put two pounds and a half of sugar, which you must boil and scum three-quarters of an hour; to every gallon put five pints of damsons, *stoned;* let them boil till of a fine colour, then strain through a fine sieve; work it in an open vessel three or four days; then pour it off the lees and let it work in that vessel as long as it will; then stop it for six or eight months, when, if fined, you may bottle it. Keep it a year or two in bottles. *Bullace Cheese* is quite as good, or even superior to damson cheese; you make both the same way, putting in the kernels after the stones have been broken.

Damson Wine.—*E. B.* sends a recipe for damson wine, which she knows to be good:—"1 peck of damsons to four gallons of water; cut the damsons and put them in a tub; boil the water and pour it over them; let them stand four days; then put them in a sieve and let them drain; put the liquor in a cask and put four pounds of sugar to a gallon.

Burying Bees (*B. B.*).—The hives are bound with straw previously, to prevent the damp injuring the hive, and for this purpose straw is better than any other preservative. Grapes are useless for bees, and you will find about bee flowers at page 316 of volume iii. Let your hives remain unmoved until you see what Mr. Payne says in our next number.

Wintering Greenhouse Plants (*J. Barr*).—Read what Mr. Fish has stated in our present and last number.

Iron Training Rods (*Grace*).—Let these be about eight inches from the glass roof of your hothouse, and a foot and half apart, running the lengthways of the house. Apply the ammoniacal liquor in the spring.

Greenhouse (*Rev. J. Downs*).—The information you require will be given next week.

J. B.'s Greenhouse (*J. S., Cheltenham*).—If you refer to his statement, you will find he uses Carman's Stove, 120, Newgate-street. (*Rev. C. A. A. Lloyd*).—Stoves without flues would not do for choice greenhouse plants in a growing state, nor are they good for any horticultural purpose, on account of the Carbonic Acid Gas they produce, but for merely keeping out frost in the cheapest practicable mode from bedding-out plants, such stoves have been successfully used. J. B. is an example.

Name of Pea (*W. L.*).—The large bean-like peas you have sent, which grow in pods seven inches long, on stems seven feet high, with purplish blossoms, are probably *The Tall*, or *French Imperial*, one of the edible-podded kinds, to be boiled in and eaten with their shells.

Autumn Planting Potatoes (*Potato-eater*).—Your *Prince Regent* which ripen in August, will do very well for autumn-planting. We cannot say whether your variety is the same as the *York Regent*.

The Employer and the Employed (*H. H.*).—It is quite impossible for us to give advice when we know neither of the parties; but if we did we should probably say as we say now—Tell your employer what his late steward engaged to do for you. If he replies that he is unwilling to do all that you were promised, it then remains for you to consider whether you are comfortable and willing to remain upon the terms offered. For a head gardener, your wages are low; but such situations are not plentiful, and applicants for them are very numerous

Elm Timber (*A Bromley Curate*).—Fell it as soon as the leaves are all fallen. Either November or December are good months for the purpose. The timber is not so liable to decay as that felled in the spring.

Back Numbers (*G. E. H.*).—All these and the indexes can be obtained of our publishers through any country bookseller.

Germination (*A Lover of Flowers*).—We do not understand you—pray write more explicitly.

Unripe Figs (*A Young Entomologist*).—We know of no use for them. China asters can only be raised from seed.

Sillett's Fork Husbandry (*C. Greening*).—Any bookseller will get it for you from Messrs. Simpkin and Marshall. Do not be misled by the prices, but calculate his returns at such prices as you can realise now in your own neighbourhood.

Weigelea Rosea (*A Constant Subscriber*).—Turn it out into a border without disturbing it. It is perfectly hardy.

Rabbits (*A. B.*).—The best and cheapest trap is the wire used by poachers. Your steel traps are not strong enough, get larger.

Bees (—) —The bee traps cannot be purchased, but they are easily made. We have no recipe for *bitter ale*. Answer to your other question next week.

Books (*T. M. W.*).—We do not know either of those you mention.

Currant Cuttings (*Clericus*).—The insects on the roots of these are a species of mite (*Acarus*), and will do them no harm.

Cover for Bees (*W. Snowden*).—Nothing is easier than to put a broad band, or collar, round the conical part of your common straw hive, so broad as to support an inverted milk-pan. We believe that turning bees to the north, and shading them from the sun in winter, is a good plan. Wait until you have read what Mr. Payne says next week.

Earthing-over Potato Stems (*A. Foster*).—This has no beneficial effect in preserving potatoes from the murrain; it must rather have a tendency to increase it. In cases where no disease followed such treatment, there would have been none, probably, if the stems had not been earthed-over.

North Border (*W. W. H.*).—This, 150 feet long, we should partly plant with pot-herbs, and the remainder will serve for laying in brocoli, placing auriculas and polyanthuses upon after they have done flowering, and many such purposes.

List of Pears (*Amicus*).—You will find a list of 20 pears, calculated to supply you with fruit from July to April, in the first volume of The Cottage Gardener. There are about 600 varieties, good, indifferent, and bad, which it would be useless to encumber our pages with. The twenty selected by us are described, and full particulars given concerning them.

Artichoke Culture (*T. P. R.*).—Suckers of this must be planted in March or early in April, in rich moist soil, in rows about four feet apart each way. Water abundantly and mulch over their roots during their time of growth. They will produce heads from July to October. These are boiled, and the bottoms of their leafy scales eaten with butter and salt.

Poultry not Laying (*L. A.*).—Keep them warmer, and feed them on more stimulating food, such as fragments of flesh meat, buckwheat, and sun-flower seeds.

Name of Plants (*J. K.*).—Your's is *Oxycoccus macrocarpus*, the large-fruited Cranberry. It succeeds in peaty soil, in a cool situation near water.

Forcing Potatoes (*Truro*).—It would be quite impossible, commencing at this time, for you to succeed in producing for your employer a crop of new potatoes in a 2-light frame by Christmas-day, however well you may be off for fermenting materials. Asparagus you have sufficient time for in the 2-light frame. You will be likely to succeed much better with a crop of potatoes, if you have all things ready to plant the bed the first of January next. *Achimenes patens* is a stove plant, and requires the same treatment as other Achimenes.

Variation of the Compass (*Weathercock*).—In putting up your vane, the true north in the neighbourhood of London must be 22° 30′ to the east of the north, as pointed out by the magnetic needle. In other words, the variation of the compass there at present, is 22° 30′ W.

Name of Plant.—That which came up accidentally in a kitchen-garden is *Cacalia coccinea*; a very pretty half-hardy annual.

Name of Apple (*Rev. T. H. R.*).—It is *Fearn's Pippin*, and has not been introduced more than thirty years, if so much.

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WEEKLY CALENDAR.

W D	OCT. 31—NOV. 6, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
1 Tu	Elm leaves fall.	29.902—29.495	54—31	S.W.	—	54 a. 6	34 a. 4	1 52	26	16 14	304
2 F	All Saints. Hazel stript.	29.605—29.439	57—35	S.E.	—	56	32	3 10	27	16 16	305
3 S	All Souls. Michaelmas Term begins.	29.607—29.578	58—37	E.	—	57	30	4 26	28	16 17	306
4 Sun	23 Sun. aft. Trinity. Lilac stript.	29.563—29.345	55—42	E.	—	59	29	5 43	29	16 17	307
5 M	K. William III. landed. Ash stript.	29.234—29.058	54—36	E.	0.02	VII	27	sets.	●	16 16	308
6 Tu	Gunpowder Plot, 1605.	29.308—29.106	53—33	S.W.	—	3	25	5a.40	1	16 15	309
7 W	Leonard. Skylark's song ceases.	29.251—29.519	50—31	S.W.	—	4	23	6 17	2	16 12	310

If any of our readers in the course of their wanderings found in a quiet country church a monument inscribed as follows, they would say—and their conclusion would be the truth—"Surely a teacher rests here."

"Living in an age of extraordinary
Events and Revolutions, he learnt
(as himself asserted) this truth,
All is vanity which is not honest,
and there is no solid wisdom
but in real Piety."

These are the words of John Evelyn, one of the greatest men of the Stuart era—if that man is great whose knowledge, kindness, and piety were equal, and each pre-eminent. I must observe, says one who knew him well, that his life, which was extended to 86 years, was a course of study, inquiry, curiosity, instruction, and benevolence. The works of the Creator and the mimic labours of the creature were all objects of his pursuit. He unfolded the perfection of the one, and assisted the imperfection of the other. He adored from examination; was a courtier that flattered only by informing his prince, and by pointing out what was worthy for him to countenance. He was really the neighbour of the Gospel, for there was no man that might not have been the better for him. He was one of the first promoters of the Royal Society; a patron of the ingenious and indigent; and peculiarly serviceable to the lettered world; for, besides his writings and discoveries, he obtained the Arundelian Marbles for the University of Oxford, and the Arundelian Library for the Royal Society. Nor is it the least part of his praise that he, who proposed to Mr. Boyle the erection of a philosophic college for retired and speculative persons, had the honesty to write in defence of active life against Sir George Mackenzie's "Essay on Solitude." He felt that with himself retirement resulted in industry and benefit to mankind, but with others it was a withdrawal to laziness and inutility. Evelyn did, indeed, love retirement: but it was retirement occupied by literature, the fine arts, philosophy, and the cultivation of the soil. With an ample fortune, hung round by all that renders home a foretaste of that which knows no separation, yet whenever the service of his country called for the exertion of his abilities he never hesitated to tear himself from these flowers of life. He accepted, at different times, a Commissionership of the Privy Seal, of the Mint, of the Plantations, of Greenwich Hospital, and for the care of the Sick and Wounded; but he retained none longer than was required to effect the good designed, and then hastened back, like a bird to its nest.

He was born on the 31st of October, 1620, and reached manhood just as the first Charles was falling before the Parliament. He would have hanged himself beneath the royal standard, but the king dispensed with his services, and directed him to make the tour of Europe. The diary of that tour remains as a testimony, to use his own expression, that "he did not travel merely to count steeples." It remains also, as do his letters, to tell us that he who loves monarchy, and is the personal friend of kings, may yet detest and oppose their arbitrary measures. The same records also tell us, that he who directed to be inscribed on his tomb that 'he fell asleep in full hope of a glorious resurrection through faith in Jesus Christ," and who through good report and bad report remained strongly and steadily attached to the doctrines and discipline of the Church of England, yet was truly charitable to those who differed from her creed. 'God," he said, "will make all things manifest in his own time, only let us possess ourselves in patience and charity. This will cover a multitude of imperfections." This truly Christian man demands an especial notice in our pages, because, as old Switzer remarked, "like another Virgil he was appointed for the retrieving the calamities of England, and reanimating the spirit of his countrymen for the planting and sowing of woods. To him it is owing that gardening can speak proper English." Not only did he improve the language in which he conveyed his lessons for the cultivation of the soil, but those lessons were the results of experience guided by philosophy. His *French Gardener*, a translation, first appeared in 1658; his *Kalendarium Hortense*, or Gardeners' Almanack, in 1679; his *Sylva* and his *Terra* and *Pomona* in the same year; Quintinye's *Treatise on Orange-trees* in 1699; and *Acetaria*, or a discourse on Sallets, at the same time. These are not all his contributions to our horticultural literature, but they are sufficient to establish him in the foremost rank of its authors. No work has been more justly celebrated than his *Sylva, a discourse of Forest Trees*, for it not only imparted sound information as to their cultivation, but was attended with this happy result, that in the dedication of the second edition to the king he was enabled to say, "It has been the sole occasion of furnishing your almost exhausted dominions with more than two millions of timber trees." To achieve such success seems to have been only a carrying out a mission descended to him from his ancestors. From some eminence in the cultivation of one of our native trees the family derived its patronymic, for he tells us that the name was originally written *Avelan*, or *Evelin*, and signified the hazel. Even the family residence told of forest craft—Wotton, or Woodtown, being so named from the noble plantations in which it was embosomed. In 1705 Evelyn saw a fourth and enlarged edition of his *Sylva* issue from the press, and on his birthday in that year is this entry in his Diary: "Oct. 31. I am this day arrived to the 85th year of my age. Lord! teach me so to number my days to come that I may apply them to wisdom." This was almost the last entry, for on the 27th of February following, according to the words of his epitaph, "he fell asleep." It must not be omitted that his son, John Evelyn, delighted in the same pursuits; and it is equally deserving of record that he was blessed by having for his life's companion one who loved him, who sympathised in all his pursuits, and, surviving him but three years, wished her dust to mingle with his. "Mary Evelyn," says her truthful epitaph, "the best daughter, wife, and mother—the most accomplished of women—beloved, esteemed, admired, and regretted by all who knew her—is deposited in this stone coffin, according to her own desire, as near as could be to her dear husband, John Evelyn, with whom she lived almost threescore years." There is, says Mr. D'Israeli, what may be termed a family genius. In the home of a man of genius he diffuses an electrical atmosphere; his own pre-eminence strikes out talents in all. Evelyn, in his beautiful retreat of Saye's Court, inspired his family with that variety of tastes which he himself was spreading throughout the nation. His son translated *Rapin's Gardens*; his lady, ever busy in his study, excelled in the arts her husband loved, and designed (and etched) the frontispiece to his *Lucretius*; she was also the cultivator of his celebrated garden, which served as an example of his great work on *Forest Trees*.

Meteorology of the Week.—At Chiswick, from observations during the last twenty-three years, it is found that the average highest and lowest temperatures of the above days are 53° and 38° respectively. The greatest heat, 63°, occurred on the 6th in 1843; and the lowest cold, 20°, on the 3rd in 1845. On 82 days rain fell, and 79 were fine.

We think that it may be accepted as a dictate of the soundest reason, that no practices can be more unjust or unwise than, that the man who has been robbed should be compelled to feed his robber; and, that the poor should be sustained without being called upon to do their utmost to support themselves.

Our Saxon forefathers, whom we are too ready to look back upon as barbarians, were much wiser upon one of these points of domestic policy. If a man was guilty of manslaughter, they did not stupidly imprison him, and still further injure the family of the slain, by making them contribute to the county-rate out of which the slayer was supported whilst in prison; but they made that slayer pay to the family he had so injured the value, or *were*, of the life he had taken. There was some sense in this; and equally wise would it be of us in the nineteenth century if we not only did likewise, but if, when a man was robbed, we compelled the felon to labour, and to continue under restraint, until he had repaid the value of what he had stolen. So, again, though it is our bounden duty to support the poor, who necessarily and wisely "shall never cease out of the land," yet equal wisdom and justice has dictated, that "the idle soul shall suffer hunger."

The question then arises—how can we empower the felon to give recompense to him he has robbed, and the pauper to support himself? We have no hesitation in replying—By making them till the soil. We have on more than one occasion shown the profit to be made out of small plots of ground, and we would render this

a means of the felon's making reparation, and of the pauper contributing to his own support.

So far from this being a chimerical idea, we are extremely pleased to observe that, the cultivation of the soil is rendered highly profitable as well as a part of the *Industrial Training of Pauper Children in the Guiltcross Union, Norfolk.* Such is the title of a little pamphlet now before us; and we cannot better enforce our opinions than by quoting from this some of its statements, which are from the pen of the highly-intelligent master of that Union, Mr. Rackham:—

"At the formation of the Union the Guardians purchased 3 acres of land, of which 1A. 2R. 5P. was used as the Workhouse site, and for the yards and offices connected with it, leaving, 1A. 1R. 35P. available for the purposes of cultivation.

"At Michaelmas, 1845, the Guardians, in order to extend the means of employing the boys in the Workhouse School, and training them in habits of industry, procured 3 acres of additional land: this land, which was then in hills or holes, and useless for agricultural purposes, was levelled by the paupers, the top sward being carefully kept uppermost. In the autumn of 1846, one acre of the new land was planted with wheat, and 2R. 23P.* of the home-land—the 1A. 1R. 35P. mentioned above—was also planted with wheat, making in all 1A. 2R. 23P. under wheat for 1847. This land produced 18 coombs 3 pecks beyond a sufficient quantity reserved for seed for the wheat crop of 1848. The remainder of the land was planted with Scotch kale, cabbages, potatoes, &c., &c., which began coming into use in March, 1847, at which time this account commences. We have now 4A. 1R. 35P. in cultivation.

"Two dozen spades were purchased at the outset to commence digging the land with, and 6 wheel-barrows were made by a pauper who was a wheelwright; pickaxes and other tools were also made by the paupers with the assistance of the porter who was a blacksmith. The cost for these does not appear, as there was no produce account to charge them to, but the stock being kept up they remain as dead farming stock.

"The first year's account was kept merely to satisfy the Guardians, but at Lady-day, 1848, the new order of accounts came into operation, and the land account now forms an item in the Union ledger and master's day-book, which is duly audited by the auditor half-yearly.

"The quantity of vegetables actually consumed by the paupers according to the dietary table only is charged in the provisions accounts. Persons acquainted with domestic management and the produce of land are aware, that where vegetables are purchased, a great deal is paid for that which is useless for cooking purposes. In the present case this refuse is carefully preserved and used for feeding pigs, which were first kept in April, 1848. This accounts for the large amount of pork fatted, as compared with the small quantity of corn and pollard used for the pigs. The leaves, &c., not eaten by the pigs, become valuable manure. If the Guardians would consent to keep cows, different roots and vegetables might be grown to feed them with; and these would produce an increased quantity of manure, whilst an increased quantity of manure would afford the means of raising a larger amount of roots and green crops, and secure a more extended routine in cropping the land.* This would add to the profit of the land account, and give much additional comfort to the aged people and the young children in the Workhouse, as a better supply of milk and butter would be obtained than can at present be had; but the immediate profit of cow-keeping would be but a trifling advantage compared with the opportunity that would be given of training the female pauper children for dairy-maids, who would thereby become doubly-acceptable as farm servants, and the boys too would gain an acquaintance with the recent improved management of cows, which could not fail to be of service to them.

"For the benefit of those Boards of Guardians or Masters of Workhouses who may from this statement feel desirous of entering upon the system here pursued, I would state that in all cases I change the crops, sowing alternately, wheat, potatoes, carrots, parsnips, and cabbages. I have found by the experience of the last two years, that it is best to plant early potatoes, and to plant them very early, that is to say, in February or the beginning of March. Having plenty of labour during the winter months, the land is laid in ridges 2½ feet wide, about three inches of the top soil is pared off which removes all weeds and seeds that may be in the land; after the wheat crops a full spade's depth is taken up, together with all the crumbs, and 3 inches of top-soil is then forked into the sub-soil at the bottom of the trench, which gives fresh soil for the potatoes. At the time of planting a drill, about 3 inches is drawn, and the potatoes are put in a foot apart, the sides of the ridges being chopped down so that the potatoes are covered about 6 inches. As the potatoes advance in growth, I have the land levelled, and in May sow swede turnips or plant cabbage plants. The potatoes are fit to dig in August, when I transplant the swede turnips or plant more cabbage plants, first giving them a good soaking in liquid manure, for which purpose all soapsuds and night-soil are carefully preserved. Two crops are thus obtained in the year from the potato land.

"The land appropriated for the produce of cabbages, is managed as follows:—in the middle of July I sow cabbage seed of a good kind, namely, the Ham or Victoria; I sow again in the 2nd weeks of August and September—beginning to plant if possible the latter end of September—in rows 3 feet apart, leaving 9 inches from plant to plant. These being well established in growth and earthed up, other cabbage plants are planted between those rows as before stated, in January or February, as the weather may suit. These are put in 15 inches from plant to plant. In early spring I draw every other plant of those first planted, which affords a supply when most wanted, and admits air to the remaining plants. After cutting the first cabbages, the ground is cleared, and the third crop of cabbages is planted, which furnish a supply till after harvest, when the cabbages between the potatoes come into use, and the cabbage land is cleared or made fit for a wheat crop. It will be seen that an abundant supply is thus produced for pigs, and if the Guardians permitted cows to be kept, there would be enough for them also; but it must be borne in mind that all this planting is followed up by very liberal supplies of liquid manure.

"The following is a summary of profit for labour upon 4A. 1R. 35P. of land, as shown in detail in the account already referred to:—

	£	s.	d.
First year	60	2	4½
Second year	51	17	6
To Christmas, 1849, ¾ year	67	2	1½
	179	1	11½

"I have thus endeavoured to give all the information I can upon the subject, disclaiming any intention of teaching the well-informed farmers, my only object in preparing this statement has been to point out to those who have the charge of children in Union Workhouses a means of training them in habits of industry, and preparing them for future usefulness.

"The fact that there are 60 boys and girls who have been trained at this Workhouse now earning their own living, is some evidence of the success of the system pursued there."

From the above statement it appears—and all the details are minutely given in the pamphlet—there is from each acre a clear profit of £15 per annum. Now, if this can be effected by pauper children, can any possible reason be assigned why able-bodied felons cannot be made to do the same? The labour might be rendered as severe as that of the tread-mill; for hours of continued digging and carting are not child's play; and, unlike the tread-mill, such severe efforts would not be labour thrown away.

* Mr. Rackham suggested to Miss Martineau her mode of cow-keeping.—ED. C. G.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

LY-LEAVED MYRTLE *(Myrtus tomentosa).—Gar-Magazine of Botany*, vol. ii. p. 105.—This is a native of the Neilgherry Mountains, in and of China and Cochin-China. It has been to gardeners and botanists for many years, ntroduced from China, by Mrs. Norman, as long 1 1776. It is a shrub, and its flowers are more ul than those of the Common Myrtle *(M. com-* inasmuch as that its bright purplish-pink become white after a few days, and thus its are adorned with blossom of many shades of between the two extremes we have named. It is coming more common, yet is of such rare occur- hat it may be included among New Plants. It s to be grown in the stove.

JASMINE-LIKE RHYNCHOSPERMUM *(Rhynchospermum jasminoides).—Gardener's Magazine of Botany*, vol. ii. p. 114.—Mr. Fortune, during his "Two years in China," discovered this plant at Shanghai, in the year 1844. It was first made known to the public in the *Journal of the Horticultural Society* (vol. i. p. 74), and is, as there described, a slender climbing evergreen shrub, rooting along its branches wherever it touches a damp surface, like Ivy. The leaves are deep green and glossy like those of the Camellia, and its flowers are white, very like those of the Jasmine, and deliciously sweet-scented. In habit it is like an *Aganosma*. It is a greenhouse plant, and requires a trellis. "It is to the greenhouse and conservatory," says Mr. Ayres, "what *Pergularia odoratissima* is to the plant stove."

PURPLE-FLOWERED CUPHEA *(Cuphea purpurea).—Flore des Serres*, t. 412.—A hybrid perennial sub-shrubby plant, seemingly suitable for bedding out, raised about 1848, by M. Delache, of St. Omer, from *C. miniata*, by the pollen of *C. viscosissima*. The flowers are rosy tinged with purple, large, and appear throughout the summer.

DR. WALLICH'S BERBERRY *(Berberris Wallichiana).—Paxton's Flower Garden*, vol. i. p. 79.—This is known in gardens as *B. macrophylla*. It is certainly half-hardy, and perhaps a hardy, evergreen shrub, for it has endured, unsheltered, three winters, at Exeter. The deep yellow flowers clustered in the axils of the leaves are highly ornamental. Introduced in 1845, from Java, by Mr. T. Lobb, the plant collector in the service of Messrs. Veitch. Mr. Lobb found it in mountains, at an elevation of 9000 feet above the sea's level.

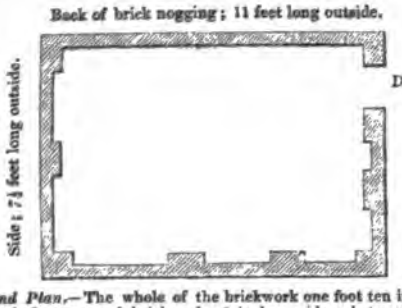
A FIVE-POUND GREENHOUSE.

OUR ingenious correspondent, who has succeeded in erecting an efficient structure for protecting his plants, at a cost so reasonable, has sent us, most obligingly, the following details and plans :—

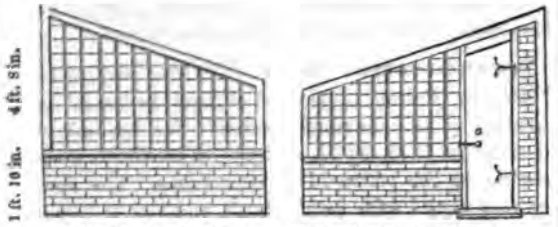
"I have attempted two or three sketches of my greenhouse, but I fear very much I shall not have served your purpose. My wife has succeeded better in the "tout ensemble," which I also enclose. In the materials I am better satisfied, as the calculations of their cost is not at all difficult.

"Of course, much ingenuity would naturally be exercised in the application of the various parts, and some reflection as to the best mode of placing the laths, so as to throw off the rain. My glass lies over the plate, so that no splashing can take place. A little zinc gutter, with pipe into a drain, carries away all the roof-water.

"A person glazing the upright glass would find thin lead S this shape, placed on the lowest frame of glass (upheld by a brad), of great use in supporting the next one, and so on until all the row is finished. The lead can be removed when the putty dries. You will perceive, with such light material the house has no shade at all; indeed, it is the same, except the glass, as if the plants were outside. It is low outside, to suit the size of my ground. Inside, I have lowered the path, so that a moderate-size man can stand upright comfortably." J. B.

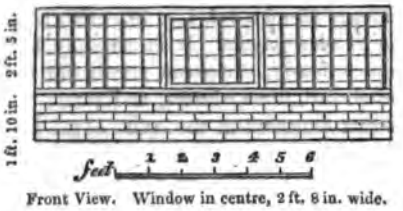


Ground Plan.—The whole of the brickwork one foot ten inches high; piers and first row of brickwork, 9 inches wide; between piers, 4½ inches.

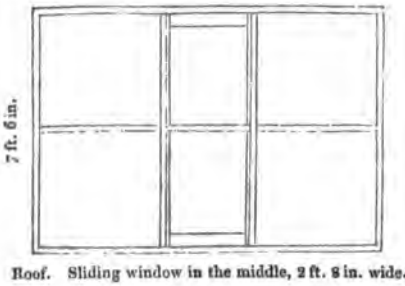


West end; 7 ft. 6 in.

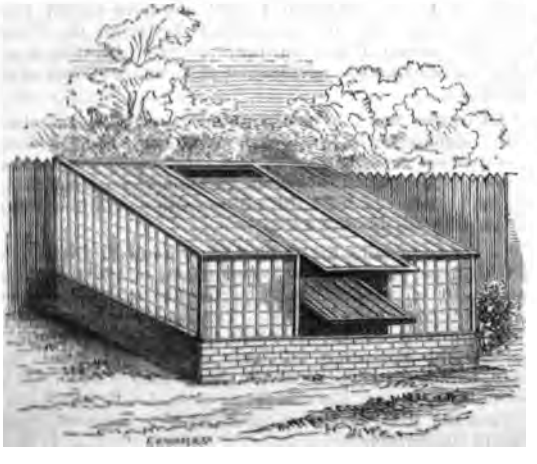
East end; glass at this end, 5 ft. 2 in. long; door, 18 in. wide.



Front View. Window in centre, 2 ft. 8 in. wide.



Roof. Sliding window in the middle, 2 ft. 8 in. wide.



COST.

	£
The back brick nogging, old stuff, and plastering	0
300 good old bricks, @ 3s. 6d. ℔ hundred, for wall	0
Lime, sand, &c.	0
117 feet of deal, 3 in. by 1½ in.; or one and half 12 in. deal, sawed, @ 5s.	0
Thus: 28 ft. for plate laid flat in mortar; 38 ft. for frame of roof *on edge*; 16 ft. to hold windows in roof on edge; 30 uprights, back, front, door, window; 10 ft. across roof, under glass—from west to east, for strength. 117	
261 feet of laths, rabbits included, 1½ in. by ¾ in., @ ¼d. ℔ ft.	
150 feet square glass, @ 1½d. ℔ square foot	
Putty, @ 1d. ℔ lb.	
One deal, for door, ½ in. thick, for linings, &c.	
Paint	
Nails	
Hinges	
Carriage	
Sill of door	
	£

THE FRUIT-GARDEN.

ORDER OF BUSINESS THROUGH THE WINTER

It will become our duty at this period to point best mode of economising time on this side Chri a period of the utmost importance to the fruit cul The days are now getting very short, and, therefor we lose in this way had better be made up, i degree, by an increased activity and energy of m

We need scarcely observe, that the present is eligible season for planting; our maxim is, t fruits with the remains of the "sere and yello on; nay, even to plant before such decline actual place, providing always that the wood is well r "Aye!" somebody may say, "whose wood is well in the north, of such tender trees as the peach, &c Whatever may be the case with other folks, we c say, that the wood of our trees—all on the border and top-dressing system—is now as rip well can be. Our friends in the south seem to at the stress we are ever laying on the evil effects mature growths, and the vast importance of p closely every principle having a tendency to p the thorough ripening of the wood. "They t whole need not a Physician"—our southerns favoured by, in some cases, about three or four of latitude, that it is plain to perceive they wond all this pucker is about. Perhaps a year or two' ling in horticultural matters at John o'Groat's, gooseberries manage to get half ripe somewher the end of August, would teach them a lesson the not readily forget. Whilst we have the honour fore, to wield a pen for the pages of The Cottag DENER, we will never forget that this busy and che "weekly" insinuates itself into many an "ingle in the north, where folks, indeed, require more than their southern neighbours,—at least, advice kind alluded to.

Foremost, then, in the category of urgent affi us name the preparation of ground for planting n It is not proper, in this skeleton view of affairs, t a full detail of the modes of carrying out such tions; such has been already chatted over in p numbers, and will be recurred to again in due co the benefit of fresh recruits. Let it suffice, there observe, that this thorough preparation consist proper examination of the staple of the soil abou planted, to see whether it is too light or too adl

and, by consequence, to ascertain whether the clayey or sandy principle is required in addition. Again, whether the plot or garden is so meagre as to quality, as to justify the improver in resorting to what we term the "platform system;" that is to say, to improve those portions in the immediate vicinity of the trees irrespective of the rest of the plot, which, with the addition of manures, may suffice to grow the ordinary vegetables.

Second in order as to garden economics at this period, let us name watercourses or drains. We do hope that our readers will put it out of our power to say, "we have piped unto you, and ye have not danced." The constant cry of wolf! wolf! is certainly grating to ears polite, but how much more grating to be told on some fine morning, that half the flock is gone? In spite then of the charge of iteration, we again say, DRAIN, if damp. Somebody will say, "How am I to know whether my little garden requires draining or not?" Now, we can feel for our gardening tyros in such matters, well remembering in early days having to grope through dim passages, "dragging our slow length along," until a glimpse of light appeared. Who does not envy the rising generation? chronicled, journalled, and I do not know what else, weekly! and if these should, perchance, shoot over the heads of thousands, a COTTAGE GARDENER to unfold horticultural puzzles, and bring mysterious matters—physiological, botanical, &c., &c.—within the reach of the most busy or the least learned, with a single half-hour's reading once a-week.

All matters, then, connected with root-culture being carried out, it behoves the cultivator to run his hand over the nailed wall-trees, and to withdraw every fastening which appears decaying, in order that work may be provided for wet or frosty weather, and also that nailing or training may be pursued at all proper intervals as the pruning is completed. We do not advise this course in order to hurry the pruning at an improper period, but merely that time may be properly economised. It must be remembered also, that nailing in severe weather is pinching work to both nose and toes, to say nothing of the finger ends. In former days we have known many a younker spend half his time, whilst at nailing matting, in buffeting, blowing his fingers, and hunting for his kerchief. The bands of matting, too, where the tying-down system is practised, should all be cut, for the young shoots should all be looked over annually. This, to persons not conversant with the practice, may appear somewhat tedious; but it is not so; and it is astonishing what a number of bands a lad will cut in an hour or two, if diligent, with a sharp-pointed knife. It will take as much time to draw one nail and shred as to cut nearly half a dozen ties of matting. These preliminaries being fairly settled, folks will begin to anticipate the approach of Christmas; and the leaves being all off, or the remainder brushed off, for the sake of cleanliness and system, pruning may at once commence, still taking care to time the weather.

Now, those who are not in a particular hurry with their planting, and are content to perform the operation in February, will do well to leave the making of stations, the preparing of ground, &c., until winter; or, at least, reserve such labour for those periods when it is too cold to prune or to nail. We name these things in order to teach young beginners how important it is to have well-digested plans for the winter's campaign; much valuable time is frequently lost by inexperienced persons through neglect or ignorance in this respect.

In commencing pruning, let the bush fruit be the first; indeed, most of these may be pruned as early as the beginning of November. The raspberries may be classed with these; and next in order we would place all young or espalier trees which have not been planted above a year or two, and in which there was no danger of cutting many blossom-buds.

The Morello cherries against cool aspects may next be trimmed, for the fruiting buds of these are always easily determinable; there can be no uncertainty here. Trained apples may succeed these, and may be pruned on this side Christmas, taking care to deal gently with those which produce blossom-buds on the young shoots. We may here digress to say, that we had forgotten to observe, that vines may be pruned the moment the leaf is off.

Thus much carried out, there will have been a thorough chain of work in hand, adapted to the weather: training when mild, the renovation of soils, preparing stations, &c., when cold and dry, and the dressing and preparing of all kinds of fastenings whilst rain or snow prevails.

As to pruning pears, plums, apricots, peaches, and nectarines, we do not like to recommend the practice until the end of January; not that it is injurious to the trees, for the earlier all pruning is performed after the fall of the leaf the better, but because it is sometimes difficult, even with a man of long experience, to distinguish with certainty the bearing wood; so many of these things, under peculiar circumstances, having a tendency to produce blossom-buds on the young shoots of the preceding season. Besides, it will be found that by observing such an order of business as the present, the hands will be pretty well occupied until the Christmas pudding is ready; after which all the world, by common consent, instantly turns its eyes to a new year, and a new order of business, and the remnant of the old year, like old worn-out friends, is not unfrequently slighted, or even treated with the utmost disdain. *Sic transit gloria mundi*, "thus the glory of the world passes away."

R. ERRINGTON.

THE FLOWER-GARDEN.

PLANTING.—Now is the best time in the whole year to plant all kinds of trees and bushes which cast their leaves in winter; but all the evergreen American plants, as, for instance, the *Rhododendron*, may be planted now, as well as in July, August, or September—the right months for getting in most evergreens. Of course, evergreens will be planted every week until next May, when the ground is free from frost, with more or less success, according to the kind of season which follows, and the degree of skill and care in the planters; but after all, those who can, should get the best part of their planting finished before Christmas. When plants are to be bought in from the nurseries, I would have them taken home this month, even if I was quite sure that I could not get them planted till next March; first come, first served, is not only the standing rule in the nurseries, but they add to it—first come, *best* served. I have wrought in more than one nursery, both in England and Scotland, and I know all about it. One rule more, which I would strictly observe myself, if I had a large order for a nursery, is this:—after looking out and marking what I bargained for, I would see the men who were to take up the plants, and "make friends with them," promising that if I got plenty of good roots carefully drawn, without cutting through or pulling them about, I would give them something for their Christmas dinner; or, if I did not go to the nursery myself, I would send a message to the same effect to the master or foreman. I know very well, from experience, that that is, of all others, the best way to insure good roots for a large order of plants. You may write to the nurseryman, that you will do so and so, or even take away your custom from him, if they mutilate the roots in taking up the plants; but if your plants are to come from a large firm, my promise would be ten times more effectual than all the threats in the world—human nature is human nature, all the world over! and a little soft

talk, or *soft sawdur* as Sam Slick would say, goes farther with it than all the big words in the dictionary. At any rate, whether at home or at the nursery, we can never lay too much stress—in these pages—on the matter of taking great care of the roots of all kinds of plants when they are removed. A gentleman sent us a letter the other day, or rather a little slip of paper, twice written over or "crossed," and all we could make of it was, that he, or his man, or somebody else, had cut the roots of something very sadly; and, probably, there was a request about what was to be done with it, but all that was unintelligible with the "crossing;" and we may write our pens into stumps without being able to write down the careless practice of handling roots, as if they were made out of old ships' cables.

In the flower-garden, the first planting of the season always begins, or should begin, with the *roses;* and this season they are more fit for early planting than I remember to have seen them, except at the end of 1846, and again, just twenty years before, at the end of 1826. Last Michaelmas-day I pruned a great number of dwarf plants in the rosary, which were quite ripe for the knife: this was to cause them to grow much stronger next season; the next day I budded thirty-two rose-stocks—six of them were budded in September, and failed; and the rest were not fit for budding in September, because the bark would not rise. The rains at the end of the month put them all right, but the budding was more for the say of the thing than for use or profit; but I dare say most of them will take. Well, the very next day I transplanted the row of roses of which I said, a month back, that I cut them, or pruned them, for experiment, leaving only a shoot to each for fear they should "bleed;" when I pruned them their tops were as green as leeks, but the bottoms of the shoots were as dry and hard as one could wish; and I am quite sure, already, that the plan of pruning back many kinds of trees and bushes at the beginning of October, so as to be ready for transplanting by the end of the month, or very early in November, would answer remarkably well. I have been at this kind of work a good deal since last July, to keep "a-head" of our planting; for I may as well say, that since we began transplanting the box-trees last June we have been at it, more or less, every week since; and if anybody wants to know when all this planting is to be finished, I must refer him to Mr. Barry, the great architect, who will also be called the great planter some of these days. Old gardener as I am, he taught me a lesson or two that I could not learn from all the books on gardening put together,—so much so, indeed, that if I wanted five hundred rose-trees from Mr. Rivers, next season, I would go to the Sawbridgeworth Nursery at the end of September, look out the sorts, and see them close pruned before I left the grounds; then I should know that they would be ready for me any time after the end of October; and I should not be in a great hurry, or in a great fright, if I did not get them home before the end of next February, as no other customer would think them good enough, even if Mr. Rivers offered them.

Now, I shall tell a tale about roses, which I hope will cause a great sensation,—at least, it caused me a great deal of surprise. I had a letter the other day, with a queen's head inside, without going through our business office at all, from a gardener whom I once knew *slightly*. He told me he was with a lady of title; that they were to plant five hundred standard roses in the kitchen-garden, along both sides of a centre walk, so many yards long; praised THE COTTAGE GARDENER, of course, and on the strength of his getting it for two-pence a week, wanted me to make him out a list, and arrange the five hundred roses for him. Now, if this man threatened to do me some grievous bodily harm, should I not be justified in summoning him before the Lord Mayor? I am quite sure he is dreaming or making a noise on his pillow nine times out of ten before I sit down to write these letters; and, moreover, he is one out of a section—a small section, I hope—who think that because he subscribes to THE COTTAGE GARDENER we are indebted to him; whereas the debt, and a heavy debt it is, too, is just on the other side of the ledger. Certainly, it is very gratifying to us who burn the midnight oil, for our own good in the first instance, and for the good of our countrymen, to find that so many people buy and praise THE COTTAGE GARDENER. Yea, our vanity is often in danger of getting fanned by what is said of us; but taking all into the account, and allowing compound interest, still the debt is on the reader's side of the account.

After the roses, the next class of flower-garden plants which I shall mention will be the half-hardy kinds from different parts of the world. The severe cold we experienced last spring taught us many things in this line. Many of this class which go through a hard winter with little danger, if they happen to be in poor dry soil, are fearfully cut-up, or rather down, after they move in the spring, if the weather sets in hard; and the damage is much aggravated after *spring planting;* here we lost four hundred roses in one or two nights at the end of March, every one of which were thought quite hardy, but they were only transplanted six weeks before. Last May and June we were besieged with letters asking how to deal with dying and dead plants from the same cause—spring planting. New plants are thus set down as only half-hardy, whereas, if better managed, their real hardihood would have been established ere this time. And what more shall I say against spring planting; what, indeed, but that all the recent introductions from Mexico and California, from China and Japan, should not be transplanted at all in the spring till we learn more about them; plant them now, or else put them off till the dahlias are being set out next May; if these and others of a rather tender nature are removed now from the nurseries they receive a check, and will yet ripen a good deal before Christmas, or at least will have their juices so much dried up by the check, that they will have all the chances in their favour to stand against a hard or long winter, and the effects of our variable spring weather. New comers that have been planted within the last few years, and are now in rampant growth, should be root pruned forthwith, which will have nearly the same effect as transplanting. The tops of succulent growths should also be well cut in before the frost overtakes them; it is a sad mistake to suppose that a few inches or feet cut off by the frost do no harm, if the parts below are ripe and not apparently affected; the whole system from top to bottom gets a shock and a chill that may cripple a plant for years, which might be avoided by a judicious use of the knife and spade, and the early frosts always do the most damage. I have known a *fuchsia* killed to the last root by an early frost, when one just as tender and not a yard from it escaped, merely because the latter happened to have been cut down to the ground some weeks previously; and I think it is best to cut down all the more tender fuchsias to the ground before the frost sets in, and if they or any other soft wooded plant bleed much by this early cutting, I think it is rather an advantage than otherwise, because all the juices lost that way at this season can do no harm to the next growth: the roots and crown of the plants are drier by the discharge, and there will be time enough for the roots to gather up more moisture long before leaves can appear to make use of it. This is a very different case from the roses I was so anxious to keep from bleeding, when I pruned them at the end of September; my object then was to get the bottom eyes well filled, as well as the shoots and roots, to enable them to push up vigorously next season, and to form new roots more effectively in the meantime; but now the object is to get rid of all the moisture and sap we can,

so as to leave less for the frost to act upon. Then as to covering to ward off danger, the grand point to be attended to hinges on the same point or principle—dryness; dry covers, dry borders, dry plants, dry everything about and around half-hardy things to be protected from frost, otherwise the remedy may cause more harm than the weather; but in all this dryness let us not lose sight of *the poor gardener:* dry flannels, dry stockings, and above all, dry soles of gutta percha, and dry comforters about the throat, will go as far against lumbago, rheumatism, colds, and sore throats, as all this dry covering will do against frosts. Young healthy people are sadly careless about these things, but the days are fast coming, as I can tell from sore experience, that will convince the hardiest of our race of the folly of not attending to our personal comforts as much as lies in our power while we are yet young and full of spirits; add to this a desire to please and to seem to be at ease, and to try to be so with ourselves, and the whole will go a long way to ward off the frosts incident to our positions, whatever they may be.

But here, just as I was going to write a lecture on —I forget what,—a new dodge came across my mind, and I must out with it, else ten to one I shall forget all about it before my next letter; indeed, my worthy employer remarked at the time I got the story—"We shall have all this in The Cottage Gardener by and bye." A gentleman—a member of the family whom I have had the pleasure to serve for the last many years, and who, by his own industry, has risen to the post of Capt. R.E.—came down the other day "to see the gardener," after an absence from our common country for some years; the plough and the pruning-knife were soon forgotten, and we dived at once into foreign vegetation, foreign gardening, and all that sort of thing; and I have often thought that there is no class more instructive to talk with than those who have travelled in foreign parts—if their heads were at all put on the right way. The best that one can learn from home travellers is, that a new crust may be put on an old pie safe enough, and appear all the better at table, but still you cannot get rid of the idea of the old dish over again. Well, after travelling from pole to pole we came back to old England again, and he went down to Scotland and back again faster than I can write it; there and then he saw a plan of *making rose-trees in six weeks* from the first commencement; and any of us may make a rose-tree now in the same time, and send it to a friend hundreds of miles off in full blossom. The plan is this—any time, or soon after Midsummer, fix on a strong shoot of that season's growth, and when you find it getting hard near the bottom, put in the knife just under a bud and slit it up an inch or more as you would in "tonguing" a carnation for layering, put in a wedge to keep the slit open, and tie a ball of green moss all round it, and the work is done; the "tongue" roots immediately into the moss, and by the end of the six weeks the plant is fit to cut off below the moss, and also fit to take care of itself at the same time; and if that does not outrun railroads, what will? Now, although I had read of all that the Chinese are said to have done by ringing and putting balls of clay round the rings to get stunted trees from,—what Mr. Munro, an old friend, had written in Loudon's *Gardeners' Magazine* about driving the point of a knife through the centre of a rose shoot, wedging it, and then laying it in the ground, and so leaving it till the roots sprang out all round the opening as thick as the mustachios of a gallant hussar,—and also what the late Mr. Cunningham, of Edinburgh, had done with slits and wedges, to get cuttings to form callosities before he took them off,—and all that Mr. Loudon said about this when he was editor of the *Gardeners' Gazette*—I confess that this way of making rose plants in so short a time struck me as a great and useful novelty;—and if this number of The Cottage Gardener should reach the worthy gardener who has hit on the plan, I hope he will be induced to write a whole article on the subject for these pages, if only to save people from writing to inquire more about it of D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Heated Greenhouses.—Having glanced at some of the modes of managing somewhat hardy greenhouse plants, in houses without any means of artificial heat, and given a list of those most suitable for this purpose, I proceed—in order to gratify the wishes of other inquirers—to enumerate a few good things ("not common, as geraniums, fuchsias, cinerarias, &c."), which may be successfully grown where artificial heat is at command. In order, however, to guard against misconceptions and consequent disappointments, I must state, that in the case of those friends who are to use as much and no *more* heat than will just exclude frost, they must be satisfied with such a list of things as that previously given, in addition to their usual bedding-out plants; or, at least, the additions must be equally hardy. The chief object of fire-heat in their case is merely the saving of time and labour involved in covering and uncovering, and guarding against the damps and mildew, which are apt to seize the plants when covered up for weeks, in weather that is not only frosty but dull. With a very low temperature at night, provided it be a few degrees above the freezing point, such plants will be safe, and safe all the more, because there will be no stimulus to unhealthy expansion. In cold dull weather, when the sun does not raise the temperature sufficiently for several days to warrant the admission of air, then, by still maintaining the same low temperature at night, a fire may be stirred up after breakfast, so as to warrant the opening of the ventilators a little about mid-day, which will do away with the evils attendant upon a stagnant atmosphere, even when the temperature is low. The giving of air, even in the worst weather, is of more importance in such houses than in cold pits securely covered up, because in the latter there is less variation of temperature. Hence, during a severe frost, as we have already seen, provided the temperature is low, and the air dry, such pits may be covered up for weeks, and the plants sustain no injury—nay! they frequently will look all the better for the long rest and *nap* they have received; resembling, in some respects, the verdure of your hardy grasses that had been covered several weeks with snow, when the snow had disappeared,—that snow having fallen before the ground was much crusted with frost. But in houses uncovered—from the variations of external temperature—from the bursting-out of the sun, even for short intervals—from their upright glass in front, upon which the rays strike almost perpendicularly in winter—a period of complete rest cannot be realised within; a stimulus to growth will be given, and as that growth, especially in dull weather, deteriorates the atmosphere, a little fresh air becomes necessary. Where, as in general is the case, there are no means for heating the air before admission, it should always be given in cold foggy weather *sparingly*, and with great caution, chiefly at the top of the house; admitting it at the front only for a short time. The lighting of a fire in the forenoon, in such circumstances, will cause a rapid circulation, with the admission of even a very little fresh air, as may easily be proved by suspending any light substance, such as down, feathers, &c., in the house; and this circulation is the best antidote against mildew in its various forms, which often makes such havoc among free-growing heaths, &c. Strong fires at night are now,

happily, becoming the exception, and not the rule:—great quantities of air, and a comparatively low temperature during the day, to neutralize the effects of an unnatural stimulus by heat at night, are, therefore, not required. Proportioning the exciting agents for expansion to the light, as the means of *increasing* and solidifying, is, or should be, the object of the cultivator. These matters must be even *more* particularly attended to, where a higher temperature is maintained. In order to be precise, cool greenhouses, where no more heat is given artificially than just to exclude frost, should ever be looked upon more as the medium of *preserving* than *growing*—as the means for securing *future* rather than *present* display. The medium temperature of such houses at night, in frosty weather, may be set down at 35°, ranging from that to 40°, but not above; and in mild open weather, when the external temperature ranges from 40° to 50°, not only will fires be unnecessary, but a little air may be left on at night as well as during the day. In unsettled weather, it is safest to shut up close before going to bed. The foretelling at night what the weather will be in the morning can only be relied on after long experience, and even then the wisest are sometimes taken in.

In such houses, however, unless in a very mild winter, much in the way of bloom is not to be expected, except from some of the hardier Heaths, Primroses, Cytisus, and bulbs; neither will some of the finer greenhouse plants thrive to the satisfaction of their possessor. True, in a very severe night it would be wiser policy to allow the thermometer to fall to 35° than to dry the atmosphere of the house by roaring fires, which would thus too rapidly deprive the plants of their juices. But in such circumstances, it would be wiser still to use as much covering over part of the glass as would alike prevent the necessity of large fires, and the sinking of the thermometer much below 40°. In extreme cases, where much artificial heat is requisite, moisture also should be communicated, by pans &c., of water placed upon the pipes or flue. The average temperature of a house, which we may designate a *warm* greenhouse, should be 45° at night, sinking a few degrees in very cold weather; and allowed a rise of from ten to fifteen degrees at mid-day, in bright sunshine.

To the question of a correspondent, therefore, who inquires whether the *Mitraria coccinea* would succeed in a house where the frost was merely excluded, I reply, that, with my little knowledge of this beautiful plant, I should be extremely doubtful. Judging from its appearance, as exhibited in London, I should say it would require such a house as the second to keep it in good health; and as to the inquiry about the period of its blooming, I should suppose that would be almost constant when placed in such circumstances. From the appearance of the plant I should say, that what graced the exhibition tables in May and June had received for a time a higher temperature. It is, certainly, a pretty thing—the scarlet tubular blossoms contrasting so nicely with the green foliage. When I first read a description of it, I thought it would do for bedding purposes, but I am rather doubtful after having seen it, fearing its leaves would get larger than in a pot, and thus conceal the drooping blossoms. Some of our friends will correct me, if mistaken. It should be grown in fibry peat and loam, with a little sand and charcoal to keep the soil open; and, in addition, plenty of drainage. It has been described as *hardy*, and *almost hardy*; but this appears, as yet, undecided.

As a companion to this Mitraria, I would place the *Pleroma elegans*, with its large blueish-purple flowers, produced in great abundance. A warm greenhouse, as we have indicated, is just the place for it. It has been frequently grown in plant stoves, hot and cool; and, generally, with disappointment. When apparently growing luxuriantly, it will suddenly turn sickly, and lose, without any apparent cause, the most of its leaves; and thus present a woe-begone appearance. The greenhouse is its proper home. When grown rapidly upon the one-shift system, a higher temperature after potting will be required. The prettiest shrubby plant I have seen, densely clothed with blossom and healthy leaves, was thus managed:—It was fifteen months old from the cutting; had been moved from a three into an eight-inch pot; kept rather close in a pit, until the roots were occupying the soil, and then removed to the greenhouse. As this is a beautiful thing, a few extra particulars may not be out of place. Anything approaching *saturation* with moisture is its ruin. When the roots have occupied the soil, and growth is proceeding rapidly, abundance of moisture must then, nevertheless, be given. The *material* in which the plant is grown, is therefore a matter of the first moment. The peat and loam, the first preponderating, should not only be fibry and sandy, but pieces of charcoal and broken bricks, or broken pots, should be mixed somewhat liberally in the compost. I shall do little more than name the following—merely premising that most of those mentioned the other week will not only be preserved but bloom, or, at least, be made to bloom earlier, from thus having an average temperature at night of 45° instead of 35°.

Acrophyllum venosum: serrated foliage and whorled spirea-like flowers. Loam and a little peat. Flowers chiefly in spring and summer.

Aphelexis humilis, pinkish; *scsamoides*, whitish-purple; *macrantha purpurea*, purple; *rosea*, rose. Peat and a little loam. Flowers in spring and summer.

Boronia serrulata, pink; *pinnata*, purple; *triphylla*, pinkish-rose. Peat earth with a little sand and charcoal, well drained. Spring and summer bloomers.

Chironia angustifolia, red; *jasminoides*, purple; *floribunda*, rose; *glutinosa*, rosy-lilac. Peat earth and half part fibry loam, sand, and broken potsherds. Should be propagated often; flowers in summer and autumn chiefly.

Chorozema cordata, red; *Henchmanii*, scarlet; *Dicksoni*, scarlet and yellow; *flava* and *triangulare*, scarlet and yellow. Sandy peat, with a little loam, particularly well drained. Flower generally in spring and summer.

Dillwynia floribunda, yellow; *tenuifolia*, yellow; *glycinifolia*, red. Peat and loam with plenty of sand. Summer flowering.

Epacris impressa, red; *grandiflora*, red white tipped; *miniata*, pinkish-vermilion, white tipped; *hyacinthiflora candidissima*, white. Peat and sand well drained. Flowers in winter and spring.

Eriostemon: where there is space, those mentioned the other week and the whole family are desirable. Peat, and a dash of fibry loam, with silver sand, and a few pieces of charcoal to keep the soil open. Flowers chiefly in summer.

Enkianthus reticulatus, white and pink. Sandy peat and a little loam. Flowers early in spring.

Gompholobium barbigerum, yellow; *versicolor*, scarlet. Most of the family are yellowish-orange, and desirable where there is room. Peat and loam well drained. Bloom chiefly in summer.

Helichrysum: all the species, where there is room. Sandy peat, with a very little fibry loam. Blooms chiefly in summer and autumn.

Hovea celsii, blue; *Manglesii*, purple; *chorozemifolia*, blue. Sandy peat, with a little fibry loam, and abundant drainage.

Ipomea Learii, blue. Peat and loam. Will do well when it gets to the roof; flowering all the summer.

Kennedya dilatata, scarlet; *Marryattæ*, scarlet, strong growing; *monophylla*, purple. Peat and loam. Flower

y in spring and summer. Do either for trellises or
s.
chenaultia formosa, scarlet; *oblata*, orange; *biloba*
ba, blue. Peat and loam. Flower nearly con-
if allowed to do so.
terosideros tomentosus, red bunches of filaments.
and loam.
nelea rosea, rose red; *Henderssonii*, rosy-pink;
bilis, whitish-pink; *Nieppergeana*, yellowish. Sandy
with a little loam. Bloom chiefly in the latter end
ing and summer.
imula sinensis, flore pleno, white and red varieties.
and loam. Flower from Christmas to June.
re in our third volume.
ndevilla suaveolens, pure white. Does best scram-
over the roof.
tice: all the greenhouse species are desirable.
y loam with a little peat; if allowed, almost con-
bloomers.
lidium androceum, white; *Drummondii*, pink; *scan-*
rose. Sandy loam and a little peat. Summer,
an, and winter flowering.
pæolum tricolorum, orange and purple; *azureum*,
Good for trellises, for pillars, and rafter. *Pen-*
llum may be used for summer, and *Lobbianum* for
r; the first—orange yellow, and green; the
d—orange red, and which will make a brilliant ap-
nce during the whole of the winter months. There
so, *Dickerianum*, scarlet, green, and blue; highly
mended.
sonia jasminoides, pink and blush. Peat and loam.
for roof; flowers all summer.
hya: allied, and requiring similar treatment, to
dya, but well fitted for training round orbicular
es. *Coccinea*, scarlet; *hetrophylla*, purple; *tricolor*,
yellow, purple; *formosa floribunda*, orange red.
and loam. Blooms in spring and summer.
e newest, and, therefore, the most expensive of this
ged list, are generally placed last, though none
ioned are expensive. I have not noticed *Azaleas*—
est varieties may be added to those mentioned the
week. If wanted to bloom early, keep them at the
est end of the house; if late, at the coolest.
mellias have also been passed over. Similar treat-
for these will be required as for the *Azalea;* and if
us for what is new and strikingly good, purchase
lalii as soon as it is to be had.
aths have not again been alluded to. If a collection
ıed at, they must be kept at the coolest end of such
se, and plenty of air be allowed to breeze away
g them whenever the external temperature reaches
ınless it should either be very damp and foggy,
wing something like a miniature hurricane.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

DS THAT THRIVE BEST ON BLOCKS (*Continued from page* 36).

anthera coccinea (Scarlet R.); China. — Sepals
carlet, irregularly marked with a deeper colour;
scarlet, striped with yellow; lip yellow, barred
scarlet. 21s.
LTURE.—This is frequently called the "Chinese air
" The natives, when they meet with a plant show-
ower, cut off the upper portion of the plant with
ots attached to it, bring it home, and hang it up in
"best parlour." In that situation it soon comes
flower, and delights the inhabitants with its high-
ed and insect-like blooms for a long season. The
s are produced on long panicles, frequently
hed, and very numerous. It is, however, with ordinary treatment very difficult to flower; the reason for its failing to produce blossom is the too uniform heat and moisture of the orchid house. As it is when in bloom a truly splendid object, we shall try to describe the methods adopted by the best growers of the day to cause it to flower. The year must be divided into three seasons, and the plant must be at least four feet high before it will be strong enough to bloom. The first season will be one of rest, commencing now, the first week in November, and continuing to the end of February. This rest must be induced by placing the plant in a house, the heat of which never exceeds 60° by day, nor falls lower than 50° by night. No water must be given to it, nor moisture in the air, except what arises from the watering of the other plants in the house. The next season is one of growth, commencing in March and continuing to the end of June. During this season the plant must be placed in the Indian house; the temperature of which, for the first two months, should be 70° by day and 60° by night; for the second two months, 85° by day and 70° by night; these are the maximum heats. In dull weather they may be five degrees lower. During this season abundance of moisture should be given. The plant should be syringed every day, and the pipes or flues, paths, and walls, thoroughly wetted morning, noon, and evening, to cause a moist atmosphere. By this liberal treatment the plant will grow freely and strongly, and put forth numerous thick fleshy roots. The third season will be the flowering one. In this the temperature should be as high as the second, but comparatively dry; the syringing should be gradually reduced, and the plant placed as near the glass as possible. In this season the flower-stems will probably appear even the first year, if the plant has made short jointed strong growths. If it does not flower the first year, do not despair, but follow the same course the following season, and that result will be almost certain to follow. The way to grow the plant is to first procure a strong upright branch of a tree (cork tree is the best, elm, or acacia, the next best), fasten the plant to it with zinc wire. If the plant is young, the branch should be at least 6 ft. high; if it be more it need not be shortened, because the Renanthera is a quick grower, and will soon reach the top. Place a little moss here and there on the block to hold moisture and encourage growth during the growing season. As soon as the plant is properly and neatly fastened to the block, place it in either a basket made of willow or a large garden-pot, fill round the block firmly some chopped sphagnum, pressing it down so hard as to enable the block to stand upright securely and independently; it can then be removed conveniently, with care, into the different houses required to induce rest and flower.

When it is in flower, it will be desirable to place it in a cool dry house, which will prolong the bloom a month longer at least. Such is the treatment Renanthera coccinea requires to cause it to flower, and the same course will answer for a great number of the Indian orchids that are rather shy; *Vanda Batemannii, Roxburghii, tricolor, suavis, teres*, of *Aerides* various species, and *Sacoolabiums*, also will flower more freely if treated similarly, excepting, perhaps, not quite so low a temperature during the season of rest.

Rodriguezia secunda (Side-flowering R.); Trinidad.—The whole flower is of a pale scarlet; they are produced on spikes about eight inches long; the flowers are arranged in two rows, all facing one way. It is a very ornamental species, and when well grown is really handsome. 21s. There are some other species that are pretty, but of a pale straw colour with crimson dots. The best are named *R. crispa* and *R. planifolia*.

Culture.—Place them on a block with a small portion of moss attached, in a moist house, and shaded from the sun whilst growing; and when the pseudo bulbs are fully formed keep them cooler and dry.

Schomburghia crispa (Curled-flowered S.); Demerara.—Sepals and petals yellow and brown, and curled at the edges; lip white, with a stripe of pink, and edged with pale yellow. Each flower is one and a half inch across. They are produced on stout flower-stems rather numerously. It is a fine plant, worth growing. 31s. 6d.

S. marginata (Bordered S.); Surinam.—Sepals and petals orange red, bordered with yellow; lip pale lilac. This may be known from the preceding species by its thicker and shorter pseudo bulbs as well as by its colour. It first flowered in the fine collection at the Fence, Macclesfield, belonging to T. Brocklehurst, Esq., and has been named the "Spread Eagle." 42s.

S. tibicinis (Cow-horn orchid); Honduras and Jamaica.—Sepals and petals deep pink, speckled with white on the outside, but rich chocolate red on the inside. The lip is white in the centre, but rose-coloured at the sides, with a short chocolate red middle lobe. The flowers are more than two inches across, and are produced on stems, five or six feet long. The pseudo bulbs are hollow, and are often a fine hiding-place for cockroaches, woodlice, and other vermin, as well as a good trap to catch them in. Mr. Bateman, in his splendid work on Orchidaceæ, gives a plate of this fine plant, and a humourous vignette, showing the plants growing on the branch of a tree, overhanging a pool of water. Some adventurous urchins are trying to get some of the pseudo bulbs to make horns of, and one unlucky fellow has lost his balance and is tumbling into the water. This shows the use the natives make of the horn-like pseudo bulbs, namely, to make a noise something like that produced by a cow-horn; hence its name, the Cow-horn orchis. 42s.

S. undulata (Waving S.); La Guayra.—Sepals and petals purple and waved, not curled at the edges; lip violet colour, and small; these distinctions are quite sufficient to make it a separate species from S. crispa. The flowers also are much larger. In every other respect it very much resembles that species. It has been lately introduced in large quantities from St. Domingo by H. Cummings, Esq., along with a new species not yet flowered. 42s.

CULTURE.—These fine noble-looking plants grow best on thick flat blocks of hard wood without any moss near them; for the roots are very thick and juicy, and soon rot with too much wet. The blocks should hang vertically, to allow the water when they are syringed to pass off freely, so that the roots may quickly dry. When the plants are growing, which should be during the spring months, the atmosphere of the house ought to be hot and moist. The growths ought to be quickly made, and every year larger and stronger till they reach the maximum size. As soon as the annual growth is perfected, which may be known by the size and plump appearance of the pseudo bulbs, they ought to be removed into a much cooler and drier house, and the water withheld entirely. The roots will then appear covered with a whitish down, and will keep their vitality through the season of rest. The pseudo bulbs should also appear solid, and the flower-buds will be prominent at the end of them. Though this may be the case, still there must be no curtailment of the period of rest, which period should be comparatively long, at least for five or six months. If tempted by the plump appearance of the flower-buds, heat and moisture should be given prematurely with a view to bring the flowers forward, it is more than probable, that instead of flowering, the plants will begin to grow and the flowers will not come forward. The resting season should not be less than four or five months.

T. APPLEBY.

(To be continued.)

FLORISTS' FLOWERS.

In giving weekly directions how to treat florists' flowers, there will necessarily appear to be a repetition of instructions; yet we must continue to remind our readers of what is absolutely necessary to be done. Besides, as we believe that the readers of THE COTTAGE GARDENER are on the increase, we trust, at least to them, that our remarks will be interesting and useful.

Auriculas and *polyanthuses* will require constant attention, to prevent the evil effects of damp, cold, and wet. Air must be given on fine days by drawing off the lights; and in damp or wet days by tilting up the lights behind. At this season very small quantities of water will be sufficient, and that ought to be given in the mornings of fine days, so as to dry the surface of the soil as quickly as possible, so that no damp may arise inside the frame or pit when it is shut up at night. As frosts may now be expected whenever the sky is clear, let one mat be thrown over the glass every such night, which will be sufficient protection for this month, if not for the next.

Carnations and *picotees* in pots should be placed under glass, and protected in a similar manner to auriculas. Look after slugs and destroy them, or a plant, if not a pair, may be destroyed in one night.

Dahlias—see last week's number.

Hyacinths examine, and see that they are progressing favourably; remove the outer coverings of each bulb that may be rotting, or it will penetrate further, and eventually destroy the whole. This remark applies more especially to hyacinths in pots. Those in glasses belong to our friend Mr. Fish, who will, no doubt, give every instruction necessary.

Pinks—see last week's number.

Pansies may yet be potted in 8-inch pots, and placed under protection to bloom in those pots early. Choice kinds, intended to be planted out early in spring, should now be protected in frames, and carefully secured from wet and vermin.

Ranunculus beds must be frequently turned over, in order to be in good condition for receiving the tubers in February or early in March.

T. APPLEBY.

THE KITCHEN-GARDEN.

THE fall of the leaf will at this season cause a continual untidy appearance, and require attention in almost every part of the garden, but amongst the drilled growing crops it is very easy to rake them out, which should occasionally be done, as they only form a harbouring refuge for slugs; and if any quantity can be collected these dead leaves may be turned to useful account as a fermenting material, or for placing round the crowns of Globe artichokes, or protecting temporary frames, and many other things. If not required for such purposes they may be taken to the manure-pit, or to some place where they may be charred with other refuse.

Where slugs abound they will at this season be found troublesome and destructive to crops. The best way to accumulate them in large quantities together in a short time, is to put a few fresh brewer's malt grains about the places where they abound, in small heaps of about half a tea-cup or large tablespoonful each; the smell of these attracts the pests for a considerable distance round, and they may be seen in all directions travelling on towards the heaps of grains. New bran also, when scalded, is very attractive to them, if placed about in the same way. When large quantities are thus collected together, which will certainly be the case where they abound, in about two or three hours after the bait has been laid, by going round with a lantern, bucket and trowel, on any mild evenings, the slugs may in a short time be collected

by wholesale, and may either be saved till morning for the hungry ducks and fowls, or be otherwise dealt with by hot water, fresh slaked lime, or in any other way that the proprietor may think best. The quickest plan is at once, in the evening, to take about, with the lantern, a bucket of hot slaked lime, and dust their jackets then, although the next morning it has a rather ugly appearance if they are not collected and buried at once; a few evenings strict attention to this plan will soon clear any locality of slugs; and we find this also the easiest and most effectual system that we could ever discover, if any troublesome customers find their way into a cucumber or melon frame or pit, or into any hothouse or other structure; for a spoonful of fresh grains placed as we recommend will very early attract their attention.

Mice, too, as the weather becomes wintry and cold, after their summer's excursion in the woods and fields, will often return for shelter at this season to the garden, particularly if old dry banks form any part of the boundaries, and any sheds, &c., are contiguous. Now, there being several varieties of mice troublesome and destructive in various ways to the gardener, it may be as well at the present time to point out a little of their natural habits, and to state the simplest method we have found successful for destroying them. The dark coloured House-mouse is well known to every one, being occasionally an inhabitant of every old cottage, house, and shed, both in village and in town, and which not only nibbles its way into the bakehouse, pantry, larder, and every other place, but into the garden also, attacking the seed-drawers, &c. The dry seed of peas, beans, radish, lettuce, endive, spinach, cucumber, melon, and, indeed, almost every kind of vegetable, as well as many kind of flower-seeds whilst in a dry state, will this little pest eat and destroy. It may be caught with toasted cheese in many kinds of traps, but the easiest way to clear a place of them at once is to place away out of their reach every other kind of food, and then feeding them for a couple of nights with a little toasted cheese, by laying it near their haunts, and on the third night roll the bait of toasted cheese whilst warm in a sufficient quantity of arsenic, and lay it in the place where they have previously been fed; this is the most effectual and easy way of ridding premises at once that we have ever discovered.

The greatest enemy in the mouse way to out-of-doors gardening, and the one to which we most especially beg to call attention at this season, is a long, light coloured, brown mouse, with a white belly, large eyes, long tail, and uncommonly active on its feet when routed out of its haunts. It is fond of many varieties of vegetable and flower-seeds in their fresh state whilst saving, and will hoard up large quantities of such varieties as come in its way; indeed, they seem at times to take it on themselves to clear every seed of the flower-garden, in the way of dahlia, aster, marigold, zinia, salvia, verbena, and many others, besides hoarding away batches of filberts, walnuts, beechnuts, chestnuts, cherry and laurel stones, and a number of other kinds of seeds and fruit stones. Sometimes, too, when peas, beans, radish, and other seeds have been sown and germinated, and have made a shoot from a quarter of an inch to an inch in length, these pests will entirely clear the ground, unless stopped in their nefarious depredations in due time. We have seen the shoots from whole rows of beans and peas thus cleared in a short time, and every radish seed inside a frame, or small bed of early sown, or on warm borders when covered with litter, carefully scratched out and destroyed. These mice care but little for either toasted cheese or dry seeds as baits, but any number may easily be caught, and any premises may soon be cleared by the following simple contrivance:—Put a few peas into a flower-pot or pan, and place a little moist earth over them, or put them into a pan with a little water, and if required in haste, place them inside of a heated frame, or in the chimney corner, and apply tepid water, which treatment will soon cause them to grow enough for baits; get a farthing's-worth of strong white-brown thread and a needle, cut the thread into long lengths, threading on the peas so as to allow two only to every nine or ten inches of thread, which should be so divided when cut to the above length, tie a knot at each end of the thread, cut a handful of small raspberry canes, currant cuttings, or any kind of convenient shoots, which should also be cut into lengths of ten inches or a foot, and a slit made at one end of the thread to be drawn into the slitted sticks, the knot preventing its drawing out; the stakes are to be placed into the ground in various places all over the garden. The distance of the thread from the earth's surface should be about three inches, and the two peas should be divided about half an inch apart, to afford room for the mouse to thrust its jaws between so as to nibble the thread assunder, which it generally does without first touching the bait; a brick being placed over the bait, and resting on the thread, brings it to about two and a half inches from the ground, which seems about a convenient height for taking the mouse easily and with certainty. A boy will set at least a score of such simple inexpensive mouse-traps out of doors; and at this season, if trapping is strictly attended to, the mice may all be cleared before the peas and beans, &c., are sown. If traps are set on very loose soft ground, just slap the brick down hard so as to have a surface firm enough to secure the mouse, for we have known them scratch their way out from traps tilted on soft rough cloddy ground.

Another troublesome kind of mouse is a rough, shaggy, dark brown, bull-headed, short-tailed vermin. This fellow seems most at home in meadows, and long rough grass plantations; and feeds a good deal on green vegetables, roots, &c. This is a most destructive, troublesome fellow to the gardening fraternity in various ways. We have known them in the winter months get into the stored endive and lettuce, eating through and destroying the heart of almost every plant in a very short time. These mice burrow and form runs in all directions; we have known them get into temporary pits where thousands of flower-garden plants have been stored, and gnaw through the whole, from end to end, and from side to side; they seem to delight in forming new roads, and that, too, very often. We have known them find their way into a forced asparagus-bed, and, in one night, nibble off the point of almost every shoot above ground; and scratch out those about coming up. We have known them in districts where fig-trees are obliged to be bandaged, or otherwise protected in winter, to take possession very quietly, without making much outward appearance, and nibble off the whole of the bark from the base of the trees; indeed, we have seen fine trees stripped of their bark nearly all over by the time they were uncovered in spring, and as white as basket-makers' rods, and the trees killed to the ground; this we have seen to be the case with thousands of young ash, hollies, and many other plants. Only a short distance from where we are now writing, a holly hedge, three years ago, had, for a considerable distance, the base of every shoot and stem peeled off to the height of two or three feet; and when summer arrived it looked as if it had been fired—all brown and scorched up; indeed, the havoc we have known this little depredator make, in various ways, would astonish those who have not had the opportunity of observing it. I have known them find their way into early cucumber and melon pits and frames, and nibble off every blossom and fruit; and, not satisfied with this, would gnaw off all the plants at the base, and numberless tricks of the like kind, to which many can bear testimony as well as myself. Now, the catching of these, in an easy simple manner, was what we wished to discover, but we found it a diffi-

culty for many years. As to bread and butter, cheese, beans, peas, or other dry seeds, they took but little notice of them; but we found, at last, after trying many different things, that they delighted in pig-nuts, and tubers of the Jerusalem artichoke; and these we have found to be very successful baits; and the kind of trap best adapted for the purpose is the little bird or mouse gin.

The Dor or Sleep-mouse is a pretty creature, with its beautiful clear soft red coat, and bushy squirrel-like tail. It is fond of many kinds of seeds, nuts, and small stones of the hedge-fruits, shrubs, trees, &c.; and we have often found it take possession of an old chaffinch or greenfinch or other small bird's nest, as a foundation for making its own upon. This nest is formed in a globe shape, securely roofed-in with dry leaves, &c., and lined with shreds of the outer loose bark of the old part of honeysuckle-stems, clematis, and other kinds of plants that may afford a suitable material near their establishment, which is generally chosen in the midst of a locality likely to afford plenty of seeds for some time. At this season of the year they may often be found, and be easily secured, asleep in their nests. As the season advances, they are often discovered in dry banks, coiled-up amongst a quantity of leaves; the leaf-rakers often discover them coiled-up in sheltered, dry, warm situations. We have never observed this mouse numerous enough to commit any very extensive depredations farther than divesting the Clematis azurea, C. Sieboldii, and some kinds of shrubs, of every seed as fast as it became ripe. Discovering their nest, and taking them, is the general means of putting a stop to such depredations.

The small red white-bellied mouse, so numerously seen in corn-stacks, is but rarely seen about a garden or its structures; nor the little squeaking unhappy-looking Shrew-mouse either; nor do I recollect either of these varieties of mice ever committing any particular depredation about a garden or its structures.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

In remarking upon the manners and customs of the cottager, it must be borne in mind that I live in an agricultural and a *poor* district, near a large and populous village, where the people are, generally speaking, very ignorant,—where work is often scarce, and wages low. At the present time the general rate of wages for able-bodied men is seven shillings per week; many have only six. A man with a wife and seven or eight children paying rent and supporting life upon seven shillings a week, presents to our minds a picture of sad distress; yet in the present state of agricultural depression farmers will not, or cannot, give more; and I have heard hard things said of the poor under these circumstances, even by those who would think it a bitter trial to be reduced, individually, to subsist upon that sum. Out of this scanty pittance a poor-rate has for some time been levied upon the cottager, and the collector has suffered greatly in the painful duty he has been obliged to perform: in some cases he has himself paid the rate to spare the poor. Surely the landlords of such lowly tenements would gain in comfort more than they lose in money, if they would themselves discharge the rates upon their property, instead of taking it away from the hungry children of the poor labourer.

Under these disadvantages it seems almost a hopeless task to point out what should be done by the cottager to increase the comfort of the little dwelling; it seems impossible that anything can be done, except to eat the crust of bread with a thankful heart, which, I rejoice to say, is the case with almost all who have passed under my notice; and yet, whoever knows much of the interior of cottages—I mean among the poorer class—will be aware that there does exist in them great carelessness, improvidence and waste.

It seems a harsh and severe thing to lay the blame of this upon the wife,—to make her accountable for all the want and disorder that afflicts the little household; but she has much to do with it, and many things might be far better than they are, if she did her duty cleverly. In many cases ignorance is the cause of much of this evil; there is a defect in the way in which the daughters are brought up and sent into the world to be labourers wives, which many of them never overcome. They are taught, indeed, to read and work at their needle—and blessed and useful is such teaching! for the way of life is opened to the eyes of the child who can read her Bible—but nothing else is taught them; and a girl when she marries, is often utterly ignorant of the way to make the commonest pudding, the simplest broth, a cup of gruel, or a loaf of bread. All she can do is to cut her husband some "victuals" to take with him to his work—which consists of a piece of dry bread,—and to wash his clothes for Sunday, which latter operation is often performed in a slatternly and uncomfortable way. The mothers are themselves so unskilful, that they cannot instruct their daughters; and there is no other means of acquiring the knowledge of making the few homely preparations that would be such a comfort to families, both in health and sickness.

I shall never forget the wretched condition of a poor labouring man, suffering from a distressing swelling on the side of his head, which eventually caused his death, but in which state of increasing agony he lingered long. He was a quiet, patient creature—but he had such a wife! she could do nothing: her house was dirt and confusion—her children ungovernable and idle—her hands incapable of doing anything to comfort and relieve her husband—and her voice! it was enough to put any one's temper to the proof to hear her hopeless, unvarying tone. With such a wife, nothing could be done at home to alleviate the sufferings of the unhappy man—it was all misery together; and his removal to the hospital was a happy event not only to himself, but to all who felt interested in his welfare, and who could do little for his benefit, while under the care of such an ignorant and helpless woman.

If it were possible to combine the art of domestic management in its simplest forms with the other instructions of the weekly school, if any arrangement *could* be made by the rich and benevolent to fit the daughters of the soil for *their* important position in the state, it would, indeed, be a boon to the country; and if every parish could prepare its female population—at least, in this generation—to be clean, active, useful wives and mothers, it would do more to secure its own comfort, peace, and respectability, than if hundreds were spent in gifts at Christmas; and the blessing would be transferred from mother to daughter, perhaps, for years and years to come.

If a room could be connected with the school in any way, where broth, and gruel, and simple puddings might be made for the sick and poor, and if all who were in the habit of supplying these comforts to those around them would consent to send the *raw material* to be manufactured under safe and skilful superintendence, and if the girls were obliged to take it by turns to cook, to clean the vessels employed, and keep the room or kitchen in proper order, they would be learning lessons of great consequence to the well-being of many; and also be in some measure prepared for their first attempts in service. I venture to throw out this suggestion with extreme diffidence, because it may already be carried

out in many places upon a far wiser and better scale; but I have never happened to meet with or hear of anything of the kind; and knowing the ignorance of *some* portion of the poorer classes, it has occurred to me, that a plan of this kind in every parish, under the eye of the clergyman's lady, might effect great good. I believe it can only be attempted with the *rising* generation; that which has *arisen* is very difficult to persuade. Even in the lowliest rank people do not like to be taught, or interfered with in their cottages, beyond a certain point; and I think that bad effects have sprung from an indiscreet way of treating the poor in their little homes. Although they are poor, they have wills and ways of their own—each, in his British castle; and even in our endeavours to do them good, we must treat them with respect and tenderness; and I am sure that if we strictly did as we would be done by, we should abstain from many little ways, both of speaking and acting towards them, that, perhaps, cause many a pang, and many a bitter feeling in their hearts.

Women have so much influence, even in the lowest stations of life, that if we improve their capabilities wisely, and *according to their sphere in life*, we shall do much for the benefit of the country at large.

ALLOTMENT FARMING FOR NOVEMBER.

We should hope that by the time these remarks meet the eye of the allotment cultivator, he has collected and secured many of his most valuable roots. Those who have not done so, may fairly count on indifferent keeping properties. As the season declines, of course the probability of dry weather declines also; and we would, again and again, impress on the minds of root cultivators the importance of both *getting their roots dry* and *keeping them dry* afterwards. As for potatoes, it is a very common practice in this part of the kingdom to suffer them to remain in the soil until nearly the middle of November, but from what cause, except through dilatoriness, we could never perceive. If, indeed—cultivating them, as they do, in "bouts" or "lazy beds," as some term them—their object were to avoid fermentation in the pit or bog, and that they soiled them over in the end of October six or eight inches deep, there would appear some reason for the proceeding.

It is very pleasing, in conning over the various newspaper reports from various parts of the United Kingdom, to perceive, that notwithstanding a vast amount of alarm occasioned by cases of rapid decay here and there, yet, that on the whole, the reports wear a far pleasanter aspect than they have done at any similar period since the commencement of this sad visitation. Of this fact we feel persuaded, and we are also backed in the opinion by our market prices; for here we can purchase any quantity of really sound potatoes—sound as to their keeping appearance—for twenty-one pence per bushel of ninety pounds. Now, one farthing per pound is surely not very alarming, and the potatoes are, in general, of splendid quality—floury and fine-flavoured. That the improvement has taken place mainly through increased care of the seed, by an early and more particular choice of it, and, above all, by earlier planting, there can be no doubt. Let us, therefore, again urgently advise those who have not yet made a selection of seed for the ensuing year, to be instantly revenged on their neglect, by accomplishing this most necessary proceeding forthwith.

In selecting the classes of early and second early potatoes from those classes characterised by their roundness, and of which the Shaws and Champions of former days were the types, too much care cannot be taken in choosing those which possess a greater amount of roundness than the rest. It is well-known to those who have grown early and second early potatoes for many years, and who have taken to a free use of manure in their production, that they are apt to "breed out," as it is termed. The same may be said of the Ash-leaved Kidney, and, indeed, of most kinds. Now, this to novices may appear as being "too particular." The man, however, who will excel in any department of gardening, must blot out that word from his dictionary; he may easily be too particular in mere whim, but not easily so in his pursuance of *real principles*. Besides, it will be found that many of the "sets" show a tendency to produce deeper "eye-holes," as they are termed; this, to say the least of it, becomes inconvenient, and in the paring of potatoes leads to waste. Again, with the kidney kinds, an examination will show that there is at all times a tendency to "run back," in other words, to increase in roundness. Our practice is to plant entirely what are termed in this part "sets," that is, those rejected as being too small for eating purposes. These are, however, larger than the "chats" of the Londoners, being, in fact, as large as a good sized walnut with the green or outer shell on. These, we are persuaded, bring, in the main, the finest and most even crops of potatoes. Cut sets from large specimens possess very gross buds; these develop under favourable circumstances a very coarse shoot, and the coarse shoot is as sure to produce very strong tuber strings—if we may use such a term; need it be added, that there is sure to be one or two overgrown potatoes at the end, which fatten betimes at the expense of a later progeny.

In selecting seed, too, prefer those with a rough or russetty appearance to thin-skinned sleek-looking sorts; the former have been earlier formed, and are more mature, the latter are, many of them, produced as the last act of growth in the potatoes. As to situation for preserving seed potatoes, we again repeat, *get them dry, and keep them dry*; and rather keep them too warm than suffer them to freeze. We have, at this time, about half-a-dozen bushels of the best early kinds, which were taken up a little before they were ripe and spread about three deep on a dry boarded floor upstairs. Here they lay for a month, when they were gently turned, and at this time they are the finest sample we ever possessed. Instead of having shrunk, they cut as firm as a sound carrot or swede turnip; and their little buds, in half embryo, are peeping already in healthful clusters in every cranny. In another fortnight, we shall make a bed of dry soft hay close to the wall, pile them on it a couple of feet deep, and cover over thickly with hay, thrusting it also between them and the wall. Thus they will lie until February, and when uncovered they will have little stiff buds, scarcely a quarter of an inch in length; and we shall then place them singly and protect them until planting time.

The cottager's roots, then, being duly secured, the very next thing we would have him turn his attention to is the manure-heap. All the earlier made manure, collected since last April, should be separated and thrown together in a conical heap, and a coating of soil of any kind applied nearly a foot thick. This should be beaten smooth to throw off rain; and the heap will be found of great value in March and April for the crops in general. This done, the question is, what to do with the remainder, which will be of a coarser character?

It so happens, that at this period there is, perhaps, more coarse haulm, weeds, &c., attainable than at any other period. Such, then, we would collect forthwith, and blend them with the rough manure, in order to bring on a slight fermentation. The fermentation will be of immense use in breaking down the texture of tough materials, for this heap will be wanted probably before the other. As soon, however, as the heat gets beyond that of new milk it should be soiled over, and all its virtues shut in. Thus it will lay and stew, if I may be permitted that term; and if it can be kept warm for a month, it will be a fine pulpy mass of excellent material. As to refuse, why there is all the potato haulm, and the whole of the weeds of the garden, which should have a rough dressing immediately, both for the sake of culture and also for decency's sake, and herein lie three legitimate objects all one way. The common, or other wilds, where accessible, may furnish fern or other coarse herbage. Lane sides, avoiding all trespass, may be trimmed in a manner to benefit the public, and, indeed, every coarse material of the vegetable character should be scraped together,—even sawdust and tan if attainable. Thus may a heap of manure be collected, which, when broken into, will astonish the cottager himself.

Another important point at this period is, to see that all water-courses are scoured out; for the trenching we shall recommend will only produce half its effect if stagnant moisture be permitted to haunt the allotment. Where the cultivated ground is situated in low flats, the ditches are too apt to possess only a very trifling fall; and where such is the case, a clear scouring should be given annually, for the

faulty character of the incline is enough, without suffering accumulations of mud and coarse herbage to impede the passage of the *dull* water-course. Of course, the active allotment holder will consider at this period whether any *more* drainage is necessary; and if so, instantly make up his mind resolutely to carry it out by hook or by crook. If ever he drained a piece before, or had to dig a formerly stagnant plot, both before and after draining, it will surely put him in heart as to the character of the labour involved, to say nothing of the superior produce.

And now we have to suggest another little matter, which, indeed, may be settled in half an hour, and that is, that the cottager forthwith decide in his mind how he will have his ground cropped in the ensuing year. He can do this over his fire-side; and a little discussion with his family will serve to expand their ideas with regard to the handling of allotments. We consider this *absolutely* necessary, inasmuch as the character of the digging or trenching, as well as the amount of manure, depends on the settlement of this question.

These things done, let all spare time be employed in digging or trenching every spare plot, throwing all in ridges, in order to receive the benefits of a winter frost. As to trenching, we advise, that every portion of the garden be trenched at least once in every three years, for we do not suppose that the allotment holder can deeply trench every portion each season. Let the trenching always be for the tap-rooted crops, as carrots, parsnips, long red mangold, &c., or for onions, cabbages, &c.

If the plot be sour, let him wheel all his cinder-ashes on it, or old lime rubbish, sand, or very loose sandy soil; this should be put on the ground *first*, and *spread*, and then the manure. Do not pare the dung, as too many do, into the bottom of the trench, only as burrows for the earth-worm, but dig it in with the soil with a deep spit, merely casing this over with the under portion. Manure sinks but too fast in many soils; for carrot culture, however, it may be kept deeper.

After such plans are carried out, the days will have become very short, and if the cottager can get a day by chance, he should spend it in examining his fences or boundaries, and make provision against trespass. In "trimming" or repairing hedges, it is a tolerably sure sign of a want of sufficient energy or interest in land to see a cottager year after year content to patch his blanks with dead materials. It is astonishing what annual labour is thus thrown away by many dilatory farmers, without taking a little pains to procure a live fence. To the allotment man or cottager then, who has a boundary of this character, we say, whenever you meet with a decided blank, never allow it to pass during the planting season, but instantly plant fresh thorns, taking care to well break up the bottom, and to introduce a little fresh soil, paring all the weeds, &c., into the bottom of the hole. This done, a little "trimming" or plashing, *well performed*, will provide a dead fence until the new plants are established.

Those cottagers who keep a cow, will do well to plant abundance of cabbages for stall feeding; and this is a good period, if omitted previously, to plant a good breadth. Miss Martineau confirms this practice, as will be seen at page 334, Vol. iv., where, in her useful paper, she has shown forth some very good practices in cottage economics. Mr. Sillet, too, at page 17, of our present volume, has no less than seven thousand cabbages as an item of produce sold from a small portion of only two statute acres; the profit on which altogether he represents as no less than £51 1s. 10d. What say our large farmers to this, who say they cannot live in these pressing times on some two or three hundred acres of land? To be sure, there has been a great depreciation in the value of farming stock and produce since Mr. Sillet's estimate was formed; still it sufficiently attests what has been often asserted by good judges—that with the highest possible amount of culture there can be little doubt, that England's average might in effect be doubled.

It would appear, therefore, that at no very distant day the spade *must* in a very considerable degree supersede the plough, and that a great breadth of present pasturage must give way to an extensive cultivation of green and root crops. What is above all, we do hope to see the day, when no labourer's cottage may be permitted without three-quarters of a statute acre of land attached to it. R. E.

THE APIARIAN'S CALENDAR.—NOVEMBER.

By J. H. Payne, Esq., Author of "The Apiarian's Guide."

I HOPE that by this time many of the readers of THE COTTAGE GARDENER may have adopted the plan of uniting bees as directed some short time ago in its pages by a "Country Curate," and that they will communicate the result of these attempts through the same channel. My own bees having neither swarmed nor worked a glass of honey, are all tolerably strong, which rendered it unnecessary for me to try the experiment, but which makes me the more desirous to learn how it has generally succeeded with those who have. I also wish that some persons would try the experiment of wintering a few of their stock in a northern aspect; and by carefully weighing to ascertain if they really consumed less honey, and are in April in as good health as those allowed to remain in their southern quarters during the winter months. November is a good time to remove them.

A person writing to me a day or two ago says, "How could I best keep the sun off my bees in winter, as recommended by a writer in the last number of THE COTTAGE GARDENER?" I reply in the words of the same writer: "See Mr. Taylor's Bee-keepers' Manual, 4th edition, page 147, where he says in the case of common hives, as a means of preventing the access of the sun's rays, I have always seen the advantage of fixing before each a wooden screen large enough to cover the whole front placed one or two feet in advance—acting, in fact, as a north front. This does not interfere with the coming forth of the bees at a proper temperature, and it supersedes any necessity for shutting them up." It is a board eighteen inches square fixed upon a pole, and if made to slide upon it similar to a fire screen, all the better. It may, I have no doubt, be found a very useful thing in an apiary.

In giving "a table of the estimated weight which should be allowed for the *comb* and *bees* in hives of the first year, and when two, three, four, and five years old," as I have been requested to do at page 408, vol. 4, of THE COTTAGE GARDENER, there is some difficulty. That the combs in a hive do increase in weight every year they are allowed to stand, is a fact that no person at all acquainted with bee management will attempt to deny, but the *exact* yearly increase it is difficult to ascertain. However, in giving an estimate, it will be better to err on the safe side. I would say, therefore, for a hive of *seven years* standing, during the autumn and winter months, allow for combs, bees, and stored pollen, seven pounds; for one of *six years*, six pounds and a half; for *five years*, five pounds and a half; for *four years*, four pounds and a half; for *three years*, three pounds and a half; for *two years*, three pounds; and for *one year*, two pounds.

DESCRIPTION OF THE DOVE-COT PIGEONS.

FIFTH RACE.

(*Continued from vol.* iv., *page* 202.)

THE POUTERS: *Columba gutturosa.*—The throat or crop of these singular birds is enormously swollen by their power of drawing in and retaining a large quantity of air. Those of a pure origin are uniform in their colour, the great quill feathers of the wing being white, and the female is always like the male.

All pigeons have the faculty of swelling their crops, but to a much less degree than the Pouters. We are not aware of what use this extraordinary power can be to them, but we do know that it is frequently attended by disaster to them. Their swollen crop obliges them to draw their head back, and to remain almost in such a perpendicular position that they can no longer see before them, and the bird of prey takes advantage of the moment when they thus bridle up to fall upon them and make them its victims. This swelling also renders their flight heavy and difficult, and deprives them of the possibility of rising high, or of going any great distance in search of food; and when these pigeons fight, and begin to moult, their rough and reddish throat presents a disgusting aspect. Another inconvenience, again, common to all pigeons that swell their throat is, that, being obliged to keep themselves in an upright position as if they were endeavouring not to fall forwards, they are, when in this

situation, quite unable to resist other pigeons which attack them, and can with one stroke of the bill inflict a mortal wound on their swelled throat. If a gust of wind overtakes them it turns them over with violence, and frequently carries them some distance. But still these disadvantages are nothing compared to another, frequently brought on by this prodigious distention of the throat, the result of which is usually fatal. The Pouters are not very productive, and have great difficulty in feeding their young: the reiterated efforts which they are obliged to make, to bring back into their beak the grain they have swallowed, occasions a disease which generally terminates in death in the course of a few days. The muscles of the crop, already weakened by too great a distention, entirely lose their energy after a spasm of disgorgement, and they remain in a paralyzed and weakened state; the first digestion no longer takes place, the corn accumulates and remains unacted upon in the crop, which it draws down by its weight. The fatigued animal can no longer support it, but leans forward and drags its throat on the earth; it is deprived of the power of flying, and sorrowfully creeps into the darkest corner of the dovecot; the grain which can no longer pass into the stomach becomes putrescent; the membrane of the crop is inflamed; ulcerations appear, and death quickly follows, if a prompt remedy is not resorted to. There is one mode of curing this disease, which we will now give, having practised it ourselves with perfect success. A kind of bag must be procured the length of the sick pigeon, and sufficiently narrow to press every part of the body, but still not to hurt it in any way. The material it is made with ought to be as elastic as possible, that is to say knit. A thread stocking may be advantageously employed if we will not trouble ourselves to make a bag on purpose. The pigeon is slipped into it, taking the precaution of securing its feet by extending them the length of its tail, to prevent its making painful and dangerous efforts to release itself; the head and a small part of the neck is allowed to protrude through the upper opening. Thus swaddled, the bag is hung against a wall or vertical plank, by means of a string fastened round the pigeon, and the breast is placed against the surface of the wall or plank; it is left in this attitude for several days; and when the grain it has taken is well digested, some more is given it, but in small quantities, and at intervals it is then allowed to drink, without leaving its bag. The disease being now removed, it is set at liberty in a place by itself, and its food rationed out to it, so as to give it time to re-establish itself perfectly. The muscles of the crop gradually recover their vigour, and the bird is restored to health. However, when this accident has once occurred, it is frequently known to be reproduced by every brood. Sometimes the crop bursts, and the food diffusing itself occasions the most serious consequences. In this case, I have seen my colleague, M. Corbie, open the throat with a very sharp incision knife, take out all the food that had entered it, sew up the opening with a piece of silk, and then follow the treatment we have just described for the first case.

In consequence of all these reasons, these birds have been rather neglected, in spite of their beauty. According to Buffon, also, some varieties of them have been lost, at least in Paris.

22. Common Pouter Pigeon: *Columba gutturosa subrubicunda.*—The males are generally streaked with small black tongues at the extremity of the plumage; the females are never thus streaked. The eye with a yellow iris, or cock's eye; the feet a little shod; plumage reddish brown. As these birds all produce abundantly, and nearly equally, we shall not repeat it in the other varieties.

23. The Cropper: *Columba gutturosa strumosa.*—It differs from the preceding in the plumage, the extremity of which is the colour of the chamois or wild goat. It is never streaked, and it is much less esteemed. The eye is black like the following; feet rather shod; the females are never streaked.

24. Whitish Pouter: *Columba gutturosa candida.*—Its name indicates what it is. It has the swelling much less detached than the following, with which it must not be confounded.

25. White Pouter: *Columba gutturosa alba.*—The swelling of the throat appears much detached like a globe. The wings long, crossing over the tail; the feet a little shod.

26. Spotted-grey Pouter: *Columba gutturosa cinerea varieyata.*—Its colour would be uniform, if it was not for some black tongue-shaped marks scattered irregularly over the cloak or covering of the wings.

27. Grey Pouter: *Columba gutturosa cinerea blanda.*—Its colour is delicate and uniform all over the body.

28. Rusty-grey Pouter: *Columba gutturosa cinerea-ferruginosa.*—It is marked with riband-like bars.

29. Grey-dotted Pouter: *Columba gutturosa cinerea-punctata.*—Silvery, and spotted with black.

30. Marroon Pouter: *Columba gutturosa balanicolor.*—A broad white mark on the neck; plumage of a brown chestnut colour, with the quill feathers of the wing all white.

31. Bibbed Black Pouter: *Columba gutturosa nigra.*—

Of a beautiful velvety black, with the ten large quill feathers of the wing quite white; white bib under the neck; naked feet; that is, without feathers.

32. Bibbed Slate-coloured Pouter: *Columba gutturosa ardosiæ colorem referens et fasciata.*—Wings and bib white; female like the male, as in all the pouters with white wings; feet shod.

33. Red Pouter: *Columba gutturosa rubescens.*—Wings and bib white; feathers reddish.

34. Olive Pouter: *Columba gutturosa oleagina.*—Plumage of an olive-coloured brown. I have never seen this species described by Buffon; doubtless it no longer exists.

35. Dark-grey Pouter: *Columba gutturosa cinerea-caligi-nosa.*—Wings and bib white; plumage of a sombre grey.

36. Blue Pouter: *Columba gutturosa cærulea.*—Wings and bib white; plumage bluish, with black streaks. This pretty variety is very generally spread through Picardy, where it is highly valued.

37. Large English Pouter: *Columba gutturosa maxima.*—This superb variety, which at the present time only exists in England, very frequently attains the size of a Roman pigeon; it is very productive.

38. Dantzic Pouter: *Cclumba gutturosa gedana.*—This is not so large as the preceding; its plumage is of a uniform pale red, with the wings streaked with white; naked feet; yellow iris.

39. Harnessed Pouter: *Columba gutturosa strata.*—This variety and the following are much smaller than the preceding, neither have they the faculty of swelling their throat so much. They differ from them again in the feet, which are not always so much shod. It has a plumage varied in an inverse manner with the swallow; that is, what is white in one is coloured in the other. There is, however, this difference, that the spot, coloured in the swallow and white in this pouter, extends in this last a little below the beak, in the form of a half bib or band. Its neck and throat are of a deep slate-coloured grey, the back light blue, the wings and the shoulders white, as well as the head; the tail is blue, tipped with a black bar.

40. Yellow-harnessed Pouter: *Columba gutturosa strata-*

lutea.—Resembling the preceding in form, size, and arrangement of colours, but of a uniform yellow on all parts which are coloured.

To be continued.

ON BEES AND THEIR MANAGEMENT IN FORMER TIMES.

ALTHOUGH I am convinced that the management of bees has really less influence on the success attending them than the management or assistance we render to other things has on their final issue, yet as the matter has assumed an important feature in your pages, I beg to lay before you the treatment a very aged acquaintance of mine had been in the habit of giving them many years ago; and probably some of your apiarian friends may learn that some of their ingenious contrivances were, with trifling exceptions, known in an outlandish country village nearly a century ago, as the person above alluded to, long since departed, had followed the same course of treatment for something upwards of 60 years. I have seen other plans, reflecting great credit on their inventors for the mechanical contrivances adopted, yet it must be allowed, that very little honey is made in these novel structures; and the poor cottager's unassuming old straw hive, sheltered by a piece of turf or an old broken dish inverted on its top, usually produces more honey than the rich man's beautifully constructed apparatus fitted up with glass additional sitting rooms for the bees to retire into, and other seeming attractions, and the whole ensconsed in a house erected on purpose, proof against mice and other intruders, and surrounded by Flora's richest treasures; yet with all these seeming advantages it affords no small gratification for the poor cottager to hear that one of his own straw hives contains more honey than the whole colony inhabiting such gay quarters.

My venerable friend lived and died at the same place, in one of our northern counties,—a situation of unpretending character; but at the distance of two or three miles are extensive tracts of moor or heath, which formed the chief pasture for his numerous flock, and afforded the principal feature of his plan.

Notwithstanding that he had a great regard for the old straw hive, he did not use it much; it did not afford the same facilities as the wooden boxes for obtaining honey without destroying the bees. His boxes were made of the best seasoned deal, as they had to endure the scorching effects of bright sunshine. They were uniform in size, and I think like a cube of 13 or 14 inches, inside measurement; that may appear large, but his object was to have them so—a small or confined swarm he used to say was useless; at the back of these square boxes a small piece of glass was let in, more to indulge visitors with a peep into the interior than with any other purpose in view, as it was always covered up. On the top, were some holes corked-up; the aperture for entrance was small, but the landing board or stand on which it rested was somewhat spacious. This may suffice to describe the first floor or story of the busy hive's abode. Now, spacious as the above may seem, he did not think it sufficient at all times, and consequently had boxes similar to the above in size, but only half the depth, placed on the top of the first, the corks or plugs (five in number) being taken out, and very often a third box or even a fourth of the same size added, all ingress and egress being still confined to the small place at the bottom of all, and all interstices between the boxes where they might not fit close made as air tight as possible. Air, he said, was not so much required as heat to carry on operations inside; and he used to affirm, that it was the absence of heat, which a small body of bees could not possibly be possessed of so much as a large quantity, that caused their failure, rather than any want of individual energy on their parts. But having now described the abode, let us now turn to their treatment, &c.

We shall presume that a swarm made its appearance early in the season, and I may here remark, that the first swarm does not always give such tokens of their intention beforehand as after swarms do, so we shall say it did come off and alighted on the branch of a tree where it was accessible; well, as soon as the busy throng had clustered themselves in sual egg-shaped lump, and the quantity could be guessed at, and it appeared small, it was doomed to be returned back to the hive again. So the swarm was shaken into an empty straw hive which was lighter to handle than the boxes, and the hive placed over a sheet in a sunny place, the bees generally clustered into it in a few minutes, and when partially settled they were taken carefully up and the sheet spread level on the ground, and the swarm again shaken out of the hive into the middle of the sheet, and a search commenced for the queen bee, amongst the half-crawling, half-flying, yet good-natured insects; and I never knew an instance of the queen not being caught in that way and secured. The remainder of the bees were allowed to settle themselves in the hive again,—which they will do,—and they were finally carried to the hive from whence they came, and a temporary board of a good size placed level with the landing place or entrance; they were then emptied out, and readily found their way back to their paternal home. I guess this will appear extraordinary to our town friends, accustomed to look at bees with some alarm, even when a square of sheet glass separates them; but I assure them it is not more singular than true. Bees in swarming seldom sting, and even when they do it is seldom attended with the pain that follows the sting of an older insect. This may be easily accounted for, by the almost helpless state they present when first issuing from their abode—a seeming rush is made to the entrance, and generally they are pushed over the edge of the landing board and fall to the ground, only a few taking the wing on their descent; and so very docile are they usually at this time that I have seen one capriciously cluster on the top of a high beech tree, and I have, accompanied by another person, scrambled up after them, cut off the branch (which fortunately was a small one) and conveyed our living burden safe to the bottom, handing it from one to another as we descended. It is easy to guess that a rupture between parties at an elevation of some thirty or forty feet would have been highly in favour of our assailants—had they proved so; but tranquility was maintained, and the swarm housed without accident. I do not affirm that stings are uncommon on such occasions, on the contrary, swelled faces, one or both eyes (the neighbourhood of which is a very attractive place for their vengeance) nearly swelled up, and the hands similarly disabled, are the occasional misfortunes of those attending bees; and more especially those of one unaccustomed to them, who, alarmed at their buzzing about his face, &c., attempts to scare them away by striking at them with his hands. This is the worst thing that can be done, as their peaceful intentions being so rudely attacked, they are almost sure to return to the charge with a vengeance. Nevertheless they sometimes sting even without provocation; in crawling up the hands their further progress is arrested by the shirt wristband, or sleeve, under which they may have partially entered, and finding their onward movement arrested, and probably a slight movement of the hand may impede their retreat, a sting is not unusual at such times; the usual remedy at that period was a very simple one, but had to be applied immediately; it was only a little dirt wetted and applied to the spot, and held there a minute or two; it generally allayed the pain and prevented swelling.

It is surprising what a degree of hardihood and courage extensive practice only can command; and where two or three are concerned, it sometimes assumes an almost fool-hardy piece of competition which can accomplish the most daring exploit, even when a more prudent course would have been attended with equal benefit. However, a certain degree of courage is absolutely necessary when, as I have before said, the queen bee has to be sought for amongst the buzzing throng in the sheet. She is known by being larger than the other bees, and I believe she has one more streak across the body; but of this my memory may be faulty; size is the usual characteristic, and the wings, which, however, she does not use so much as her subjects, are much shorter in proportion to her bulk. But, under favourable circumstances, so docile are bees in such cases, that I have absolutely seen a swarm emptied at the end of a sheet, and the empty hive, with the front propped up a little, placed at the other, and have seen the bees driven into it by gently rubbing over them a small bough; of course, a considerable number of them took wing, but a great many crawled in the direction intended, and it is needless to say the scene afforded a good deal of amusement to us youngsters, besides giving us a more favourable chance to find the queen and make other

:s; and I do not remember an instance of my vene-
riend allowing a swarm to be added to his stock with-
having made the acquaintance of her majesty; and
as I have before said, her subjects were not numerous
1, or even herself defective in personal agility, or, in
words, poor looking, she was, like royalty of yore,
d either to death or captivity; in fact, the former
followed the latter, for although we often succeeded
ping her alive for a few days, she eventually died. Her
ts, consequently, were returned home again, and their
rs considerably increased by recruits by the time
r queen was being prepared to lead them forth to
rable industry, which was usually about ten days. We
presume this swarm was up to the mark. It was
ingly placed in its proper box at once, and allowed to
the afternoon near where the swarm alighted, and
ll was quiet at night it was removed to its final place;
t was not early in the season, it was bundled off that
or very early the next morning to the station on the
or moors, although at that time there might be lite-
othing there almost for it to live upon, as the honey-
g heath (*Calluna vulgaris*) is seldom in bloom before
nth of August in the northern counties, while the
bottle-shaped heath (*Erica cinerea*), which flowers
season, is of very little use to the bee, the interior
inaccessible; but when fine bright weather follows
ooming of the pink flowered heath above alluded to,
urprising how quickly the bees fill their cells. But,
id, the moor presented only poor pasturage for the
arly in the summer, and they would have been better
garden at home; but then, as it was invariably our
1 to remove them all to this heath station about bloom-
ne, this young swarm might not, perhaps, have filled
: with comb, and as they, contrary to other artificers,
begin at the top, the rough usage of a moorland
y might easily break the whole down. But when the
is sufficiently early in the season to ensure their filling
comb before the time of removal, they were allowed to
ate in a garden and enjoy the usual pasturage which
ws, hedge-side flowers, fields of clover, and other
in their immediate neighbourhood afforded.

second and all after swarms gave more warning, and
ent forth some two or three queens; the number my
friend could always foretell by listening attentively at
ck of the hive in the evening, the peculiar sounds of
eens differing very much from the usual hum of the
the hive, as well as from each other; it would be vain
empting to explain such music, although at the time I
ell versed in it; and, if no untoward weather retarded
could reckon pretty sure the night before they came
ld have been placed beside the hive, and caught as
as three queens as they issued forth; and, perhaps,
ight still escape for the bees to cluster to; but when
han one queen existed, it was our practice to destroy
the strongest one. That the bees do that themselves
no doubt; at least, that is the received opinion. I
ore remark that all late or small swarms were at once
ed to the hive again, minus the royal family; they
easily go back even with her, but would most likely
off again next day; but, by abstracting these necessary
ages, the delay of procuring another enables other
r bees to join their ranks; so that the next migration
e powerful and likely to succeed; while the very late
s only weakening the parent hive, and with only a poor
of surviving themselves, had at once better be sent
o their homes.

ing detailed the swarming process, and presuming the
cks to be crowded full, the next thing was to give them
ed accommodation. For that purpose the corks stop-
ie holes at the top of the box were drawn out, and
r box placed on the top; this second one being, as I
fore, only half the depth of the bottom one, but in
ther way exactly like it; and when this was filled,
r similar box to the last was placed on the top of that,
all cases ingress and egress was still confined to the
. It was these half boxes that were made available for
as when they seemed full, they were removed, but
ie at a time, and an empty one put in its place; and
r the one taken away was at the top or the middle,
pty one was always placed in the middle, so that the
occupants of the upper story had to pass through the empty room on their way to their own quarters. Even when the third one was first placed there it was put in the middle, to enable those boxes to part freely from the one below them; the bottom was laticed over with strips of wood to take out when the honey was to be removed; this kept the comb from adhering to the top of the box below it. Care was taken that those slips did not cover the holes of ingress and egress, and likewise that they did not prevent the close fitting at the edges, so essential in all matters. I may here observe, that the taking away of those filled-up boxes was done in the middle of the day, and could only be performed by the parties being well secured against the vengeance of the plundered bees. This was a job differing widely from handling swarming bees; every individual here was an assailant—and a formidable one too—if they were not carefully guarded against. A large muslin bag was thrown over the hat and tied securely about the neck, taking care that it did not touch the face anywhere, otherwise it was not proof against their stinging through it; good gloves, and all places of entry about the breast, wrists, and legs, guarded against, we went to work, one person marching off with the plundered box as fast as he could, leaving the other to place the empty one and put all right. By carrying it some distance, many of the bees left it; others bent on revenge, or in despair, still clinging to their former property, were occasionally dislodged by coming in contact with smoke, which, perhaps, some third party might have contrived at the right time; at all events, they were to be removed some way; tickling them out with a twig was often tried, and all schemes except killing, which we were loth to do. By this plan, too, there was less fear of that still more cruel death, starvation, which driving so often accomplishes. Here there was only a portion of their store taken away, and if we may judge by the quickness with which the works of the new abode were carried on, we may come to the conclusion that the whole fraternity assisted in its formation, and not the losing individual bees only; at all events, in about a week, if the weather kept fine, the place was completely filled again with comb, and in a few more days with honey; then probably the top one was taken away, and the last placed on elevated to the top, the empty one being always in the middle. I do not remember of an instance in which bees were sacrificed, except it were such as appeared unable to survive the winter even with feeding; these were destroyed in the usual way.

As soon as the first blooms of the honey heath, as it is familiarly called, made its appearance, the whole stock was carried to these working quarters; the boxes were furnished with necessary fastenings to hold them together, and a rude frame, fitting to the back of a horse or donkey, and so contrived as to allow the boxes to stand upright—one being placed on each side, and one, a small one, on the top or middle; of course the hole stopped up to prevent their escape. All wheel-carriages were out of the question here, as every one will know who has traversed any extent of waste. Soon after midnight was our usual hour of departure, and I dare say the appearance of the whole might form a not uninteresting subject for the pen of poetic genius; but our purpose was to get them safely there, and we generally succeeded without any mishap. A rough stone enclosure on high ground, and used in winter for the shepherds to drive their flocks into in stormy weather, was our summer apiary; the tops being guarded against wet by a large turf, which, taken from these moorland places, throws off more rain than would be supposed. But all our care and trouble was unavailing if bad weather followed; wet, dull, and cold seems to paralyze the powers of the bee, while bright hot sunshine, increasing their industry, their cells were speedily filled with honey. Generally they were placed there with one empty box each to fill, and if the weather held fine, another empty one was added, taking a full one away; but towards the end of the season they were more leniently dealt with, as it was an important part of the plan to have them as strong as possible for the winter. But it is surprising how quick they make honey on the heath when fine weather occurs at the time it is in blossom, which is not more than a month; but after that, they continue to make honey from the flowers found in the boggy places of those wastes. The Blue Scabious is very abundant, and sometimes so conspicuous as to form an immense flower-bed; it

is also prolific in honey, but differs materially from the heath in that respect, the honey made from it and other bog flowers partaking more of the character of garden-made honey, while the purely heath-made has a flavour peculiarly its own, and is more highly prized at the table of the rich than the other sort. Our town friends may, therefore, be told that pure honey is not always alike, and though Mr. Pillbox may doctor his different from Mr. Gallipot, yet the standard of excellence in the pure article would be as difficult to decide as in many other instances where taste is the critic. There is a sort of charm attached to the name heath which, I dare say, assists in giving the honey so made the preference, and the supposed idea of its purity, over the more domesticated honey of home growth; yet Mr. Quacksalver can easily give the latter the delicate pink hue of the former, and increase its quantity amazingly by foreign materials unknown to the simple yet industrious workers of pure honey.

The enthusiast for ingenious contrivances will see little in the above to admire, and if his taste be purely a mechanical one, he will feel offended at the absence of all intricacy; but the question is, do bees relish such toy-looking things, and how have these contrivances stood the test of trial? Alas! many a one can lament their misfortune of buying an expensive apparatus which promised to furnish their tables with glass jars of honey in abundance, and with all the paraphernalia of cases for individual colonies, and places to examine them, &c. But what is the result on an unfavourable season? They barely keep themselves, and require feeding in the following winter; and on fine seasons the honey made and brought to table is much less than the poor cottagers' homely-made straw hives produce. Such a state of things plainly assure us that honey, like other hardy fruit, is more under the influence of the seasons than assisted by any of our help; so that under the very best of management, there is only a season in five or six that is really prolific in honey. The most abundant year that I remember was 1826, and, consequently, it set everybody keeping bees; but bad seasons following, reduced the number to those only who, looking more to the pleasure of attending them than to intrinsic matters, kept up a stock. And as I write the opinions of one who had kept bees on a very extensive scale for some 60 years, I think there are few but will allow such experience deserves more attention than the invention of yesterday, or, perhaps, of last year;—certainly I have not had much experience myself the last twenty years or more. The plan detailed above alludes to the practice prior to that time; but then has success ever exceeded what I have recorded, and when it is known that as much as 140 pounds of honey have been produced in one of these boxes with its two auxiliaries, and that about the beginning of the present century, may I ask where has that been exceeded? But turning to the question in a more serious way, I guess some one will pop the question, "What profit is there in the long run?" That awkward question, evaded by many a speculator, was often asked of my venerable friend, and, with an ominous shake of the head, he used to say, "that he had never kept regular accounts, but feared that if everything was fairly accounted for, that he had made very little money by bees during a long life-time, notwithstanding that on one particular season he cleared upwards of £100 by his honey, and had an extensive stock left; but the ensuing season proving adverse, he had to feed very extensively the following winter, and the spring found him minus one-half his valuable stock he so much prized eighteen months before, although it had cost him £28 for sugar and other feeding materials, as, it must be remembered, he did not stint his favourites in their food. But such casualities are common in bee-keeping affairs; a favourable season producing abundance of honey sets everybody on keeping them, and writing about them too, vainly imagining that it was by their measures that the honey was made. It may be unkind to contradict such good-natured notions, but the fallacy is generally detected the following season.

Now, I do not wish to deter others from keeping bees by the above recital, I merely wish to restrain those novelty hunters in their enthusiastic course, and point out what has already been done. That bees by their industrious habits, &c., form a very interesting portion of animated nature, and are fit inhabitants of a garden, I certainly admit, and highl approve of every one keeping them having a taste and co venience for doing so. But when we hear of those golde dreams of wealth they are said to bring in their train, I sa pause and consider; remember, by so doing, I do not mean say they are a losing concern if economically managed, b let not their merits be injured by over flattery. In concl sion, let me again repeat the above remarks are from rem niscences in early life; the venerable personage who numerous stock I at that time assisted to manage, has lo ago departed this life, but as bee-keeping seems rather favourite topic, I thought the system he had pursued duri a long life might assist in directing some less experienc persons in the right path.—H. T.

NATIVE WILD FLOWERS.

October.

In recounting the wild flowers of September, we h reason to lament their scanty number, and the dre aspect which our meadows and woods had generally sumed. How much more ought we to lament over t flowerless fields of October, when the green grass h scarcely a daisy to enliven its darkening hue, when ev rustle of the cold wind among the dead leaves sounds t knell of departed summer, and bids us grieve o'er the fore faded verdure?

> "See the fading many-colour'd woods,
> Shade deepening over shade, the country round
> Imbrown'd; a crowded umbrage, dusk and dun,
> Of every hue, from wan declining green
> To sooty black. These now the lonesome muse,
> Low-whispering, lead into their leaf-strewn walks,
> And give the season in its latest view."

As in every region of the globe, even the most inhospital "man finds some plants to minister to his support and joyment," so, in like manner, at every season some cheer blossoms appear in our northern land to cheer our hea and cherish our love of nature.

There is a class of plants which, although almost entir neglected throughout the summer months, receive the att tions of the botanist at the present season; we mean weeds—those vile things that annoy the cultivator, a begrimmed with dust, grow rankly by the waysides, diff ing their seeds throughout the adjoining fields. It is often that The Cottage Gardener has a good word to on behalf of such cumberers of the ground, but at this d uninteresting season it may not be improper to draw att tion to a few of these despised plants, for they at pres seem almost the only representatives of our native Flora.

No plant is more common by the waysides and in wa ground than the Shepherd's Purse (*Capsella bursa-pastor* and to no one does the opprobrious epithet of weed se more applicable. Mean and uninviting in its aspect, wor less in its qualities, and altogether unpoetical in its as ciations, this plant is universally despised by the Brit botanist. Yet the very commonness of this otherwise interesting plant presents one of the most interesting p nomena which geographical botany has to disclose. I not in the British Isles alone that the Capsella abounds is found in almost every region of the globe—luxuriating the heat of the tropics, and braving the rigours of northern clime; thus adapting itself to climatic conditi of the most adverse character. Thus, wherever the Engl traveller wanders, he finds, greeting him at every step, t little despised weed of his native land; but which becor more endearing to him than even the gay assemblage tropical blossoms with which he may be surrounded; i one of the familiar things that dwelt beside his cotta door, and brings to his recollection many a pleasing re niscence of home.

The Docks are a more annoying family to the cultiva and some of them may still be found in flower, or at le ripening their seeds. The broad-leaved Dock (*Rumex obt folius*), is the most common of all the species, and is of particularly abundant in waste stony ground in the nei bourhood of buildings; indeed, we have met with it grow in the utmost profusion in the midst of the smoke and dir manufacturing towns, where even the London Pride pi out a miserable existence. The Curled Dock (*R. crisp*

is the one that is chiefly troublesome as an agricultural weed, and the difficulty of eradicating its perennial roots is well known to the farmer. *R. acetosella* is most common as a garden weed, although by no means very troublesome; in dry soil, however, where it is once allowed to spread, it is no easy matter to get it eradicated. Its near ally, the Common Sorrel (*R. acetosella*), is sufficiently familiar as a native hedge-bank salad. The Alpine Dock, or Monk's Rhubarb as it has been called, although found in various places, is not admitted into our Floras as a native plant. Having in early days been cultivated to a considerable extent by the Monks for the sake of its root, which was used instead of Rhubarb, it is supposed that this plant is only an escape from cultivation at all of the stations where it is found, a supposition which is especially rendered probable by the circumstance that the Monk's Rhubarb is seldom found at any great distance from some ancient ruin. The species of Rumex, although they have recently had the attention of British botanists, are by no means free from confusion, and Sir J. E. Smith, whose general authority in English botany we consider almost unquestionable, does not seem to have had any clear understanding of these plants. It seems of great importance in this genus to attend to the form, relative size, &c., of the enlarged sepals of the perianth, which in many cases bear prominent tubercles, also affording important and convenient characters of distinction.

The Common Chickweed (*Stellaria media*) is abundantly diffused, and assumes somewhat of the cosmopolitan character of the Shepherd's Purse, following the footsteps of man in his wanderings to distant lands. It is sufficiently troublesome as a garden weed to be familiar to the gardener; but, independent of its importance in the economy of nature, it is not entirely without its direct uses to man and the lower animals. Every cottage gardener knows how gratefully the cage bird relishes the Chickweed's seeds; and we have the authority of Hooker and Arnott, in the new edition of "The British Flora," for stating that this plant is "a good pot-herb."

The Goosefoots are not by any means a very inviting family of plants, but one species, the *Chenopodium Bonus Henricus*, Mercury Goosefoot, or Good King Henry, deserves notice here on account of its economical qualities. It has been long noticed in botanical books as affording a sort of spinach, which, however, we have not been able to learn has been actually used to any extent, and concerning the good qualities of which some botanists of high authority have ventured sceptical suggestions. Having met with a quantity of this plant growing by the wayside while taking a botanical walk some days ago, I determined to make trial of its applicability for spinach, and accordingly pulled a quantity of its leaves. The result was highly satisfactory; and although I will not venture to characterize the Mercury Goosefoot as superior to the best garden spinach, yet I can confidently recommend it to attention. It seems peculiarly suited for the cottager; in its wild state it is almost always found growing by the cottage door, planted there by nature; and the circumstance that it is freely offered to us by the waysides, ought not to prevent our planting it as an economical plant. G. Lawson, F.B.S., *Edinburgh.*

EXTRACTS FROM CORRESPONDENCE.

The Couve Tronchuda Cabbage is said to be too delicate to stand our winters; but with me the stumps of four remained strong and healthy in a very exposed situation, and without any protection beyond a layer of ashes over their roots, during the winter of last year. In the spring I had them planted in a vacant spot, well manured, and they have produced abundance of seed.—H. K.

Vinegar Plant.—There is an observation I beg to make as regards the vinegar plant, and that is, that in order to propagate it or make vinegar, instead of putting a whole one in, as recommended in one of your numbers, it is sufficient to cut it into three or four pieces (these we call sops), use one, and give the others away. A great part of the vinegar in use amongst my neighbours is made from this plant.—John R. Wood, *Thornton Rust.*

Household Hints.—A baby should be "brought up to give as little trouble as possible." How is this to be done? To save the tiresome and wearying method of lulling or walking an infant to sleep, let it, before it is a month old, be laid down awake at the proper hours, and learn to go to sleep of itself. This the nurses call *putting it to sleep awake.* It may cry a few minutes, perhaps ten of more, for a day or two, and then the trouble will be over; if allowed to stay for another month, it will cry for an hour, and this for many days. At the same early age lay it down after dressing or feeding, on a blanket on the floor, while the nurse or mother puts away the things. It will soon come to lie for an hour at a time (but care must be taken not to allow it to tire of the floor at first), while any occupation within hearing may be pursued. It will, as it strengthens, stretch and kick, and exercise its little limbs in a way it will not on its nurse's lap; and the plan will almost make a weak back a strong one. Then it will turn about and over, and learn to crawl,—nothing can be better; put it on a round dark pinafore, and never mind the dirt. Then it will get to a chair, next pull itself upright, and presently, to your delight, run fairly away. See how strong and straight its little legs are, and how merrily it laughs at its own newly-acquired powers! A nursery should have no carpet, except, perhaps, a couple of yards, or a rug, just before the fire; and the furniture, which should be as spare as possible, should be ranged against the wall, in order that the entire centre, whether large or small, may be free for play.

Now I will give you one or two receipts. A nice way of *warming up cold meat* is done by chopping it rather small, moistening it with a little catsup, seasoning with salt and pepper, and putting it like mince-meat into a crust made of flour, a small portion of its own kind of dripping, and water; then fry in some of the same dripping.

White Broth: an excellent winter dish.—A whole, or part of *a neck of mutton*, just sufficient water to cover it, plenty of carrots, turnips, and leeks or onions, pepper and salt, and now and then, for change, a few herbs or some rice. Stew well; and fifteen or twenty minutes before serving take off the grease, and add a quart of skimmed milk.

A cheap short crust for fruit pies.—½ lb of flour made hot in the oven or before the fire, 3 or 4 oz. of clarified suet or dripping (if the former, it must be warmed sufficiently to rub in easily), a small teaspoonful of moist sugar. Rub these well together, and mix with a *little* tepid water—milk is better; knead as little as may be, and roll it out. Pastry should be baked as soon as it can after it is made. Puddings made of flour and suet, or dripping and fruit puddings, should be boiled *very* fast. A large apple pudding, boiled in this way an hour and a half, will eat better and have more syrup than if boiled slowly three hours. Plain plum and suet puddings eat quite as well without eggs, if boiled long as well as fast—say five hours, at least—and be quite as firm.

Milk Bread.—One lb flour, 1 oz. butter, melted in a little milk, a tablespoonful of yeast (if thin a little more), and a little salt. Mix well, and let it rise two hours.

Tea.—After reading one of your articles on tea I procured a black pot, and much pleased was I with it; but I have now adopted a far superior plan. I put into a common tin coffee pot the quantity of water I wish to make into tea, make it boil, and then throw in the tea, and with it, whether the water be hard or soft, a very small quantity of washing soda. When the leaves have sunk it is fit to drink.

I have found, this summer, that rubbing the parts of the body infested with *the harvest bug* with vinegar, will keep them off. Rubbing the bite with vinegar will kill the insect, and then the irritation, if not indulged, soon ceases; so will, and much more speedily, common spirits of camphor. All applications should be made before the part is rubbed or scratched; they are nearly, if not quite, useless afterwards.

By well mixing a small quantity of carbonate of soda with *milk* or *cream*, it may be kept sweet much longer—double the time.—Marian.

Sulphur and Insects.—In both old and new receipts for destroying insects on plants, sulphur is one of the chief ingredients; indeed, it seems to be the sheet-anchor for the escape from every pest, from the white scale and mealy bug on the pine apples, to the endless brown scale on orange plants, nay, the greatest plague of all, the red spider on vines, &c. Although most of our leading writers advocate

the use of sulphur, I differ from them on the following grounds. In my early practice I used sulphur in common with other gardeners, but soon gave it up as a useless remedy against insects. Afterwards, I had some conversation with one of the Messrs. Loddiges, who strongly recommended, or rather the fumes of, it from the hot flues or pipes as certainly destructive for the red spider. This came from so good authority, that I gave it a fair trial; but in my anxiety to save the foliage on my vines, I went too far, not being content with simply following the plan just noticed, but foolishly went through the vinery with some sulphur on a hot shovel. I soon found my error, for many of the vine leaves were scorched, without any apparent injury to the insects. Indeed, the next day they were as lively as ever. I then put some of them to a stronger test, by placing a kidney bean plant, swarming with the red spider, under a hand-glass, and then filled it with sulphur smoke enough to stifle his Satanic Majesty himself. But when the scorched plant was put out in the sun, the insects appeared as if nothing had happened. Since then I have not used sulphur except for mildew, against which it may be of service if applied early. I say nothing of the great unpleasantness of entering a fine looking greenhouse or vinery impregnated with sulphur, however engaging be the plants. — JOHN WIGHTON.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

SELECT PLANTS FOR GREENHOUSE (*J. S.*).—You will see you have been attended to.

HEATHS FOR SITTING-ROOM (*M.*).—Of these mentioned a fortnight ago, try *Willmorei*, *Linnæoides*, and *Ventricosa*. Keep them as free from dust as possible. Give them as much air as you can by even setting them outside the window, when the air is mild and the temperature above 40°. If you keep good fires in your room in the evening, say a temperature of 60°, your heaths will be ruined unless you can manage to move them to a cooler place, returning them to the room before going to bed, when the fire has got exhausted.

MIMOSA PUDICA (*Wrinkle*).—This, if true, is properly a Brazilian annual; and, therefore, both its nature and its native locality would unfit it for living in your window over the winter. The Sensitiva is the sensitive plant, which would stand in your window in the heat of summer, but would fade in such a position before winter.

YOUNG FUCHSIAS (*Ibid*).—These, if growing, should be kept in the large room where the Arnot's stove is. If kept in the frame, you must protect them from frost until their growth is finished; after that you may place them anywhere, secure from frost, until growth commences, when you must give them light either in your frame or the large room; the latter would cost you least trouble, if you can give air when wanted.—*Geraniums cut down and potted three months ago, and now in leaf.* These will do well either in the frame, properly attended to with covering, &c., but will do as well kept near the windows in the large room, kept alike from being too hot and also from frost. See what Mr. Fish has said to-day and in late articles.—*Plants for windows in winter, with nice leaves.* What are better than myrtles and cut-leaved sweet-scented geraniums, some of which are blotched with white and some with yellow; some with a black dash along the middle, while many are perfectly green. We shall think more about it.

CHEAP GREENHOUSE PLANTS TO BLOOM IN WINTER (*Kirkdale*).—We will see what can be done.

VARIOUS (*J. W. T.*).—1. *Fuchsias* and *roses* taken up now will not do much good if placed at once upon the shelves of a greenhouse. The fuchsias should be kept in the shade until fresh roots are formed, if preserving the present flowers is the object. The roses must be treated in a similar manner; but a cold pit would suit them best if you do not wish them to bloom until next season. More will be said of roses by and bye. 2. "Is it not a general rule that all *plants after blooming in pots* ought to be immediately laid aside for rest in a cooler temperature?" With many it is, not all;—with many quite the reverse. 3. *Greenhouse climbers* have often been referred to. Those that remain the longest in bloom, we can hardly state without knowing the temperature you intend maintaining. *Tropæolum pentaphyllum* will flower from April to December; *Tropæolum Lobbianum* will flower all the winter; *Passiflora cærulea*, *racemosa*, and *Ballotii*, will bloom nine months out of the twelve; *Mandevilla suaveolens* the best part of the summer; *Kennedya monophylla* and *Maryattæ* in winter and spring. But none of these will do for present planting, unless you obtain large plants. 4. *Rose cuttings* may yet be struck if kept in a gentle heat, and dry heat secured for the top to prevent damping.

VARIOUS (*Arthur Loftus*).—You will be attended to.

WORK ON BRITISH FERNS (*J. S.*).—Moore's *Handbook of British Ferns* will best suit you.

GOOSEBERRY TRELLIS (*G. H. P.*).—Pray do not erect a gooseberry trellis without ensuring a good soil. The gooseberry likes a sandy loam, not, however, so sandy as to be "hungry." If your native staple is too clayey, you will find ample directions in back numbers of this work for the modes of correcting it. If you can introduce some turfy and mellow material from old pastures, pray do; the more vegetable remains contained in it the better. There must be no stagnation of moisture; this would prove fatal to the plan. As for the distance of the uprights, you may soon determine that—only fancy a couple of field iron hurdles leaned against each other. We would place the wire for training five inches apart. The bushes may be from five to seven feet apart in the lines. As for the fastening of the curtains, surely your blacksmith will furnish you hooks and rings or something equivalent. These are subordinate matters, and of so simple a character, that the veriest tyro may plan them by putting his head to work for two minutes.

VINERY AND GREENHOUSE (*W. H. B.*).—If your vines are or have been good bearers, we would cut them back progressively—main stem and all to the very wall-plate of the house at front. Then, supposing you have nine, cut three down now, three more the next autumn, and the last three the succeeding one. You will then not be thrown entirely out of grapes. You cannot ensure a regular crop of young shoots from old vines by cutting old spurs entirely away. If your vines are taken out, and you can command heat, why you can grow anything—Kidney beans, cucumbers, mushrooms, strawberries, &c.; but remember the heat requisite for some of these things would ruin the vines ultimately, for they require an annual rest. Your oranges and lemons, formerly in pots, are very likely starving in the midst of plenty; very likely turned out without crushing their balls, as bad gardeners do coniferous plants. First examine and see if the old ball is not dry. If so, pile sphagnum moss over it, and every time you go past them, for a week to come, pour a little water on the moss. A radical cure must be sought for in taking them up and transplanting, with a full knowledge of the cause of failure. Take care of some of your huge geranium bushes, or other exotics, to take the place of the aloes, &c. The achimenes family, grown strong in pans, are well adapted to endure shade. As to your bouquets, we have little doubt that Messrs. Beaton and Fish will, before long, give a chapter on this most important branch of fancy gardening.

GLADIOLI PLANTING (*A Constant Reader*).—Queen Victoria, gandavensis, formosissimus, ramosus, psittacinus, and floribundus, need not be planted till the spring; Cardinalis and Bezantinus plant now. Try and get a cross between the Bezantinus and psittacinus. *Bezantinus* is the only one of the European ones which is at all likely to unite with the Africans. Try *ramosus* also with the pollen of *Cardinalis*. The country is full of crosses from the rest in your list.

WHOLESALE QUERIES (*S. J.*).—Your eighteen inches of good soil on a clay subsoil, we recommend to be drained well, and the evergreen, with most other trees and shrubs, will grow well. For *lists*, look back in our indexes, and watch what Mr. Beaton will say this winter. He is to commence about such things as you want now. You can also grow anything that can be grown in our climate, by our instructions only; but the ripening of grapes out of doors you must take upon your own head. You say you can get any quantity of chalk, and to this we reply we wish we could exchange situations with you. Loam eighteen inches deep, clay bottom, high, so as to be easily drained, and abundance of chalk at hand: a prince could require no more! and a gardener would be satisfied with half your advantages. You shall hear of *walks* shortly. To renovate your *lawn*, take off the coarse turf two inches thick if you can, and put it in a heap for future composts, and that will in a few years pay for making a good lawn. Dig the ground, and sow with the grasses we have recommended next February and March, and pick out broad-leaved weeds. For the flower and pleasure-ground, *drain* three feet deep, and use large or two to three-inch pipes or tiles; and for the fruit-garden, at least four feet, &c. After covering the pipes or tiles three inches with the strongest of the clay, we would fill in the next foot with chalk in rough lumps, except where the drain lies under the walks; there we would use all chalk for filling up, after securing the pipes with a coat of strong clay. The reason for covering the drain first with clay, is to prevent chalk water encrusting the pipes. Now, after all this, let us hear of your success from time to time. We sometimes are astonished at seeing only one out of a hundred returning to give their fellow readers an account of the benefit derived from our careful advice.

TURNING BEES TO THE NORTH (*Pedagogus rusticus*).—In preference to moving the bees from a south to a north aspect, Mr. Payne would recommend the screen figured in Mr. Taylor's *Bee-keeper's Manual*, page 167, 4th edition. It will answer the same purpose; and if removed many of the bees, on a mild winter's day, will return to their old quarters and be lost. Mr. Payne is also very anxious to hear of the trial being made, in different localities, of placing a few stocks facing the north, where the sun never reaches them; not for the winter only, but for the whole year *permanently*. In Holland, we are told, the bees are generally so placed, and do remarkably well.

SMALL HIVES PREVENTING SWARMING (*A Pupil*).—Mr. Payne has not had a swarm from any of his stocks for many years, where the small hives have been put on; but it must be remembered that simply putting *on* the small hive will not prevent swarming. The bees *must* be induced by guide-combs to *work* in it, and when having done so another small hive must be supplied between the one partially filled and the stock, and in some seasons even a third, before the upper one is ready to be taken.

Fuchsias (*J. N.*).—We should be most happy to name the three fuchsias, but there are so many varieties of them, and such a sameness, too, among many, that it is quite impossible to be certain in the name from a single blossom, especially when become shrivelled as yours were before we saw them.

Leaf of Plant (*J. P. Scott*).—It is the leaf of *Magnolia grandiflora*. We shall be very glad to receive your mode of cultivating *roses in pots*; and no one will read it with more pleasure than Mr. Beaton, from whose mode you say it differs.

Low Evergreen Shrubs (*A Parson's Wife*).—You wish for the names of six or eight ornamental shrubs, evergreen or deciduous, which would not grow above three or four feet high, and thus never impede the view from the windows. The soil is gravel, the situation a vale, but yet, when the leaves are off the neighbouring trees, much exposed to the north winds. A small piece of water is close by, and the house rather shades the place from the sun. Of all the plants in our new Dictionary, the common evergreen Berberry will suit you best. *Berberis aquifolia* will grow and flower most beautifully in the poorest soil in the kingdom. If it stands the sea-breeze, and we should be very glad to know if it does, it would grow in pure sand banks, and keep the sand from shifting about. *Rhododendrons* would grow near the water, even in poor sandy earth; and so would *Laurustinus* and a few variegated *Hollies*; all of which would look better than deciduous things, which the shade of the trees might injure. As we are now old friends, you will not take it amiss if we say—few things well chosen for the wise, and long lists for the needles.

Gladioli Planting (*Rhodon*).—You ask if it would be a good plan to place under, around, and above the bulbs—when planting gladioli—about two or three inches of cinder-ashes, to improve the drainage? The remedy would be worse than the disease. Instead of improving the drainage by making a hole in "retentive" soil, and putting a few inches of cinder-ashes in it—that would only draw water to the holes, not from them.

Seed of Melilotus Leucanthus (*J. B. P.*).—Send four postage stamps to J. H. Payne, Esq., Bury St. Edmunds, Suffolk, stating your address; he has kindly undertaken to supply you.

Ranting Widow (*Ibid*).—Our correspondent says, that he noticed in the Isle of Man a plant seven or eight feet high, bearing an abundance of pink flowers, and there called "The Ranting Widow." It is an excellent bee flower, and he wishes to know its botanical name. Can any of our readers enlighten us on this point, or send us a specimen? We do not know such a name; and the only approach to it is *Widow's weed* (Cneorum tricoccum), better known as the Spurge Olive, and that has yellow flowers.

Anacampseros (*J. H. P.*).—We were quite correct in saying, "the whole genus of *Anacampseros* are either greenhouse or stove succulents." Your plant, "perfectly hardy, and growing for seven years in an exposed situation," is not an *Anacampseros*, but it is *Sedum populifolium*, a species of Stonecrop.

Flower-garden Planting (*J. P.*).—We cannot help you; for it is with extreme reluctance we advise, at any time, as to the planting of beds, and much more do we shrink from correcting the plans of others. If you refer to our indexes you will find Mr. Beaton's and other opinions, and by a little thought you can apply them to the case in question.

Metrosideros (*E. P.*).—The whole genus is comprised of greenhouse and stove shrubs, and must be treated accordingly. You do not name the species you have. It must, however, be housed immediately.

Transplanting Moss (*D. A. P.*).—Remove it without disturbing the roots, and plant it in a place resembling as nearly as possible that which it naturally inhabits. That which grows under trees must not be placed in open sun-light, but in the shade. By attending to these points—that is, learning of nature—you will succeed. Can any of our readers describe minutely in what parts of Norfolk the *Adder's Tongue* and *Moonwort Ferns* can be found? Send us eight postage stamps, and we will endeavour to aid you.

Drakes and Ducks (*R. C.*).—Four drakes are not too many to consort with sixteen ducks.

Mice (*G. M. Hagley*).—See what Mr. Barnes says to-day. *Roses* have *green centres* in your garden, very probably owing to their roots being too wet, as you suggest. Green centres are only the stamens and pistils converted to leaves—an excessive production of foliage, which, in some form, may be produced in all flowering plants if supplied with excessive moisture before the flower buds are fully developed. Excess of manure may, however, produce the same consequence.

Heading-down Evergreens (*W. H. M.*).—The best time for heading these down, "so as to leave nothing but bare stubs two feet long, in the hope that they will shoot again," is early spring, just before they begin growing.

Right to Fallen Leaves (*Justice*).—You have a plantation which overhangs the turnpike-road in the country, and you ask, "Do the leaves which fall from my trees belong to me, and have I a right to collect them, or do they belong to the person who buys the scrapings of the road?" We do not see how the scavenger can have any more right to the leaves from your trees than he can to any fruit or wood which may fall from them.

Gladioli (*F. G.*).—*Amphion*—ground colour purple crimson, white blotch with purple rays; 1½ ft. *Clotilde*—ground colour salmon pink, each petal margined with white pale blotch, with deep purple rays; 1½ ft. *Elegantissima*—ground colour salmon red, white blotch with deep crimson rays; 1½ ft. *Gloria mundi*—ground colour bright scarlet, light blotch with extended purple rays; 3 ft. *Heloise*—ground colour pale scarlet, pure white broad blotch with purple rays; 1½ ft. *Henriette*—ground colour red, buff blotch with purple rays; 3 ft. *Heroine*—ground colour scarlet, white blotch with light purple margin; 2 ft. *Fulgida*—ground colour a dark shaded red, white blotch with light and dark crimson rays; 2 ft.; good. *Iphegenie*—ground colour reddish pink, pure white blotch with purple and crimson rays; 2 ft. *Jenny Lind*—ground colour red, white blotch with purple rays; 2 ft.; extra. *Madame Sontag*—ground colour pink, large creamy white blotch with no rays—the two side petals mottled with white; 2 ft. *Princess Alice*—ground colour rosy pink, blotch, a white line with crimson rays; flowers late in the season; 2½ ft. *Princess Royal*—pale scarlet ground colour, light purple blotch with crimson rays—a beautiful variety; 2½ ft. *Purpurea*—ground colour purplish pink, white blotch with crimson rays—fine; 2 ft. *Triumphans*—ground colour bright scarlet, long white blotch with plum and crimson rays—fine, and a good form; 1½ ft. The above 15 varieties of this charming tribe were raised by the late lamented Rev. Dr. Herbert, Dean of Manchester. They were purchased at the sale of the Rev. Dr. H's bulbs, after his death, by Messrs. J. A. Henderson and Co.; and bloomed finely in the open air in the nursery at Pine-apple Place, in 1848 and 1849, and proved to be fine distinct varieties.

Names of Plants (*P. W. H.*).—The plant you sent is *Liatris pycnostachya*; and your plant under the name of *Narthecium ensifolium* is *Dianella ensifolia*. The other plant you have under the name of *Arthopagan paniculatum*, must be *Arthropodium paniculatum*. They are not different names for the same plant.

Blotched Camellia Leaves (*K. O. T.*).—The peculiar shaped markings upon the leaves appear to us as though the plants had stood out in the wet, where other wet leaves had fallen upon them, and the fallen leaves had retained a certain portion of moisture, and the sun shining upon them, the tender portions had become scorched. Whether this was so or not, they are sun-scorched in some way or other. Better ventilation early in the morning, so as to get the upper surfaces dry before the sun was up on bright days, would have prevented it, we think. Pick off the blemished leaves, and you will probably have no more. Let us hear if you do.

Guinea Fowls (*Ibid.*).—It is only the hen that has the power of uttering their peculiar cry, so if both yours do this, no wonder you had no fertile eggs.

Cider from Turnip Juice (*A Recent Subscriber*).—As *cider* is a term formerly applied to any fermented juice, the above is no Hibernicism. Our correspondent wishes to know if any of our other readers can inform him whether the white or yellow turnip is preferable for making cider, or for making the *Champagne* which is prepared from the same root's juice in one of the American States? We will give you shortly more than one recipe for brewing *beer without malt*. We know of no recent or probable edition of *Maoculloch on Wine Making*.

Peat (*A Constant Subscriber*).—That which you enclosed is only fit for fuel.

Bottling Ale (*A Young Housekeeper*).—It may be done at any time of the year, and always as soon as it has become clear or fine. Cork immediately.

Ketsup become Putrid (*J. B. P.*).—We should fear, from your account, that some of the mushrooms were poisonous. We should throw it away; it cannot be wholesome.

Name of Plant (*Langley*).—Your plant is *Eupatorium corymbosum*. It is a freely flowering greenhouse plant, and if cramped in a pot all the summer, and shifted into a larger pot at the end of August and housed, it will flower all the winter and spring months. The *Cottage Gardeners' Dictionary* cannot be sent with The Cottage Gardener by post.

Cheap Greenhouse (*C. D.*).—You have to-day what you ask for.

Newly-enclosed Land (*J. Fleet*).—Tell us the situation and character of the soil and its subsoil, and we shall be happy to advise you.

Exhibitors at Shows (*A Shacklewell Novice*).—It is neither usual for exhibitors to accompany the judges whilst these are making their decisions, nor should they on any pretence whatever be allowed to do so.

Errata.—Page 36: "*Cupressus torulosa* and *latifolius*" should be, *Cytisus racemosus* and *latifolius*. Under "*Rhododendron*," the word "turf" should be "protection." For "*Halosanthus*," read *Kalosanthus*; and for "*Roweii*," read *Boweii*.

CALENDAR FOR NOVEMBER.

ORCHID HOUSE.

The dark days of November are not injurious to orchids, provided they are kept dry and cool: that is, to a certain degree. *Air* need only be given when the sun is very powerful in the middle of the day, and then only in small quantities, just sufficient to keep down the thermometer to 70°. In dull weather the *heat* should not exceed 65°, even in the Indian house. In the Mexican house, 60° will be amply sufficient. If possible, no growth should take place during the month. As, however, some will grow even at this untoward season, they must have a small quantity of water given to them without wetting the leaves or young shoots. No shade is required at this time of the year. Some that are growing and have not been potted will require the peat renewing. Now, also, is a good time to renew *the basket* in which are growing Vandas, Aerides, Renantheras, Saccolabiums, and other Indian plants. Also, the

Stanhopeas that have done flowering, and the baskets are rotten or filled with roots, may now have new baskets, and fresh peat and moss applied. Several species will now have completed their growth, such, for instance, as Catesetums, Myanthus, Cyrtopodiums, &c., and should be placed in a cool house to rest, and no water given to them. The plants *on blocks* should still have occasional syringings, with a very fine syringe, just to keep them from shrinking. T. Appleby.

PLANT STOVE.

The great care to be taken during this month is to keep the *air* of the house dry and cool; 60° by day and 50° by night will be the maximum *heat* with sun in the day. Fires will be necessary, both to keep up the heat and dry up damps. All *decaying leaves* must be removed instantly they are discovered, or the effluvia arising from their decomposition will be very injurious to the young leaves and the winter flowering species. Creepers should be pruned in, every leaf and stem sponged and tied up to the rafters, so as to admit the greatest quantity of light. All the tribe of *Gesneras*, excepting *Gesnera zebrina*, *G. oblongata*, *G. picta*, and *Achimenes picta*, should now be at rest, and put by in some place where neither frost nor cold can reach them. This is a good time, also, to destroy all kinds of *insects*, because every one destroyed now prevents a multitude of progeny in the spring. Where there is a *bark-bed*, it will be necessary to renew it early in the month by a considerable admixture of fresh bark, after removing all the decayed to make room for it. The renewal now will keep up a good steady heat all through the winter; care, however, must be taken not to plunge the plants up to the rim in the bed till the heat moderates, and there is no longer any danger of burning the roots. Water must be given very sparingly at the roots only, and just enough to prevent the plants from flagging. All this keeping the heat down and the plants dry, is to induce a cessation of growth or rest, so as to enable the plants to start with vigour when there is more light, heat, and air, to cause strong healthy growth. T. Appleby.

FLORISTS' FLOWERS.

The great work to do this month is the planting of *Tulips*; choose a fine day, about the 10th of the month, for that operation. Plant them in rows, lengthwise of the bed; put the tallest growers in the central row, the next size on each side, and the lowest growers next the pathway; you will then have five rows in the bed, which is a convenient width to observe the beauties of each flower when in bloom. The rows should be six inches apart, and the bulbs in the rows from four to six inches, in proportion to their size and strength. They should be exactly two inches deep. When all are planted, level the soil neatly, and protect the bed from very heavy splashing showers. Gentle rains will be beneficial. All florist's flowers in pots, such as *Auriculas* and *Polyanthuses*, *Carnations* and *Picotees*, *Pansies*, *Verbenas*, &c., should be placed (if not already done) under glass. In fine weather, the glass should be drawn off every day; but if wet and cold prevail, give air only at the back by lifting up the lights. See to *Dahlia roots*, that they are not damp and covered with mould. If they are, place them in the sun till they are quite dry, and put them in some dry sand or sawdust. *Pinks* examine, and if the wire-worm prevail, stick some lettuce plants amongst them. The wire-worm prefers the lettuces to the pinks. Water should only be given on fine sunny mornings to plants in pots, and only just sufficient to prevent flagging.
T. Appleby.

GREENHOUSE.

Air, admit rather freely in mild weather. Azaleas, for blooming early, keep in the warmest end of the house, and they will not lose many of their leaves. Those for flowering in spring and early summer keep as cool as possible, so that the temperature is above 35°. Bulbs, such as hyacinths, tulips, narcissus, &c., pot for spring flowering. Calceolarias, keep growing slowly, in an airy moist atmosphere; seedlings, pot off, and prick into pans. Camellias, finish setting in, and the late ones may have their buds thinned if necessary. Cinerarias, encourage the forwardest to grow in a moist gentle heat; keep these for spring and summer just moving. Climbers, however beautiful, cut back to give light to the other plants. Chrysanthemums, remove incipient shoots from the axils of the leaves, on the main shoots; thin the buds where too thick; encourage with manure water; and, if not all in doors, have protection ready. Damp stagnant air, avoid. Fires, light in frosty and foggy weather, that air may be given; but give artificial heat during the day, rather than at night, unless the frost is very severe. Furnaces and Flues, clean out previously. Heaths and Epacrises, keep in the airiest part. Genistas, Cytisuses, Coronillas, &c., syringe in a sunny day, and aid with manure water, to cause the bloom to open strongly. Geraniums or Pelargoniums, encourage the old plants with a good position. Nip any luxuriant shoot, so as to equalise the strength; keep fresh potted ones just moving. Plants, keep clear from dirt and insects, by washing and fumigation. Temperature, keep from 40° to 45° at night. Water only when necessary in dull weather: little will be wanted, unless plants swelling their flower buds: for these use water warmer than the air of the house. A slight dusting with the syringe over the foliage will be serviceable in a sunny morning. Clean pots, paths, stages; tie, train and fresh label in bad weather.
R. Fish.

FLOWER-GARDEN.

Anemones, plant for first or succession bloom. Auriculas and Polyanthuses, put under shelter (See October). Bulbous Roots, finish planting in dry weather; pot for latest forcing, and for plunging in flower beds, &c. Carnation layers, finish planting and potting; secure the pot at once from rains. Climbers of all sorts, plant, prune, and train. Compost, prepare and turn in dry weather. Crocus, pot large lumps from the borders for forcing. Half-hardy bulbs in borders, secure from frost and rain by a boarded covering. Dahlias, cut down after frost, and let the roots remain as long as it is safe; when taken up, dry them in open sheds, &c., before storing, where frost and damp cannot reach them. Dress the beds and borders, and put mark-sticks to bulbs and other roots, to guide you when digging. Edgings, plant. Evergreens, finish planting, b. Fibrous-rooted Plants, finish dividing and planting, b. Fork over borders, &c. Gladiolus: all the old sorts may yet be planted; most of the new do better planted in spring. Grass, cut very close the last time; keep clear of leaves; and roll. Gravel, weed and roll. Hedges, plant, clip, and clear at bottom. Hoe and rake shrubberies, and bury the leaves, &c., between the plants. Hollyhocks, finish planting. Layering, perform generally. Leaves, gather for compost, &c. Marvel of Peru, take up and store like dahlias. Mulch round trees and shrubs lately planted. Plant perennials and biennials (see October). Planting, perform generally, and finish as early as practicable. Potted Plants, for forcing, plunge in the earth of a well-sheltered border facing the sun. Prune shrubs and trees generally. Ranunculuses, plant for earliest bloom. Seedlings of them, in boxes, &c., remove to a warm situation. Wall Roses, prune without delay; very strong ones, delay pruning till March; tender ones, secure from frost with moss, fern, &c. Shrubs of all kinds, plant, stake, and mulch. Suckers, from roses and other shrubs, separate and plant. Tigridias, save from frost as long as possible; should not be dried till January or February. Tulips, finish planting, b.
D. Beaton.

FORCING DEPARTMENT.

Air, admit as freely as the season allows. Bark-beds, renew or turn over, to keep up the required bottom heat. Cucumbers, maintain a lively heat too by renewed linings; if in houses, secure plenty of atmospheric moisture. Dress borders, and keep a dry porous surface. Fire Heat, by whatever means it may be distributed, must now be daily employed, to keep the temperature from 55° to 60°, with an advance in sunshine of 10°. Leaves, keep clean with sponge, &c., and remove decayed ones. Pines (fruiters) require a temperature of 70° to 80°, sinking to 65° at night; in dung-pits, keep airy and dry. Protect outside borders, in which forcing trees are planted, from rains and frost. Peach, prune; wash with diluted ammonia water from the gas-works before training. Tobacco fumigation, employ, if insects appear. Vines, strip the old bark off, and clean, as the peach, before commencing to force; begin with a day temperature of 50°. Late Grapes, keep dry by fire and ventilating freely. Water (tepid), apply with the syringe on clear afternoons. Sulphur, apply where Red spider exists.
R. Errington.

ORCHARD.

Planting of all kinds carry out. Stake newly-planted trees for fear of wind. Mulch newly-planted trees as soon as planted. Pruning, commence. Currants and Gooseberries, prune, b. Apples, prune, m. Plums and Cherries, prune, m. Large Orchard-trees, prune, c. Raspberries, prune and dress, e. Figs, pull off all young fruit as large as a horse-bean, b.; protect from frost, m. Nectarines and Apricots, clear away the remaining leaves from, m. Nails and shreds, draw out superfluous or rotten ones from all wall trees, m; pick and prepare them for renailing. Suckers, clear away from all fruit-trees, m. Vines, prune, m. Espaliers, prune, m. Mulberries, plant, b. Medlars, plant, b. Raspberries, plant, b. Strawberries, plant, b. Stones of fruits, sow, b. Apply Top-dressings to all fruits in a weakly state as soon as they are pruned. Protect *British Queen Strawberries*, m. Top-dress between old strawberry rows, b. Trench, or otherwise prepare ground for planting, b. Walnuts, plant, b. Fork ground about fruit-trees slightly, b.
R. Errington.

KITCHEN-GARDEN.

Artichokes, winter dress. Asparagus-beds, dress; attend to that in forcing, and plant in succession. Beans, plant a good main crop toward the end of the month. Beet (Red), dig up for storing; leave, or plant out for seed. Brocoli, lay down or remove to other warmer situations with good balls of earth; take care not to injure their leaves. Cabbages, plant; plant out for seed. Cardoons, earth up, b. Carrots, dig up and store, b.; leave, or plant out for seed. Cauliflowers, prick out in frames, &c., for winter protection, pay particular attention to airing in all fine weather, both hand-glass crops and otherwise. Celery, earth up in dry afternoons, having the earth all forked up previously. Coleworts, plant. Composts, prepare. Cucumbers, attend to in forcing. Drain vacant ground. Dung, prepare for hotbeds. Earthing-up, attend to. Endive, blanch, and protect. Garlic, plant, b. Herbary, clean, &c. Horseradish, dig up and store. Hotbeds, make for salading, &c. Jerusalem Artichokes, dig up and store. Leaves, &c, continually clear away. Lettuces, plant in frames; attend to those advancing. Mint, plant; force in hotbed. Mushroom-beds, make; attend to those in production. Onions, in store, look over; (Potato), plant. Parsley, plant some in a frame for use in snowy weather. Parsnips, dig up and store, b.; leave or plant out for seed. Peas, of the best early kinds, may be sown toward the middle or end of the month. Potatoes, attend to those in store, or dig up, should any remain out. Rhubarb, clear away decayed leaves, and top-dress; also pot off any number of plants that may be required for early forcing, to bring into the forcing structure as wanted. Radishes, sow, in hotbed. Salsafy, dig up and store. Savoys, plant for seed, b. Scorzonera, dig up and store. Sea-kale, pay particular attention to the removing of all the decayed leaves, &c.; top-dressing, covering up with fermenting materials, or other modes of forcing. Seeds, dress and store. Shallots, plant, b. Small Salading, sow; sow in hotbed. Spinach, thin, earth-stir, and keep clear of decayed and fallen leaves. Thinning, attend to. Trench, ridge, &c., vacant ground. Turnips, attend to thinning out, or hoeing the late sown crops, and should the weather be inclined to set in very severe, any number of turnips that are full grown, may be taken up and stored for winter use.
T. Weaver.

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WEEKLY CALENDAR.

NOVEMBER 7—13, 1850.	Weather near London in 1849.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
	Barometer.	Thermo.	Wind.	Rain in In.						
Hooded Crow comes.	30.077—29.973	57—46	S.W.	0.05	6 a. 7	22 a. 4	6 57	3	16 9	311
Birch stript.	30.313—30.254	59—52	S.W.	—	8	20	7 44	4	16 5	312
Pr. Wales b., 1841. Lord Mayor's Day.	30.330—30.253	60—44	S.W.	—	10	18	8 37	5	16 0	313
24 Sun. aft. Trin. Bunting's song [ceases.	30.246—30.201	59—32	S.E.	—	11	17	9 36	6	15 55	314
St. Martin.	30.277—30.260	60—35	S.W.	—	13	15	10 36	☽	15 49	315
Larch leaves fall.	30.168—30.013	55—35	S.W.	—	15	14	11 40	8	15 41	316
Britius. Wood-pigeons flock.	29.996—29.709	55—39	S.W.	0.18	17	12	morn.	9	15 33	317

is a striking interest attached to the birth-place of the goodly not that one fancies for a moment that so much excellence must en nestled in some luxuriant sunny nook of the earth, for all ce is against that, but because the imagination delights to picture as he was a boy in the scenes of his childhood, and to dwell upon gs which ministered to give him his first knowledge in life. "One y wishes," says Dr. Lettsom, "to be acquainted not only with the teresting circumstances of his life and character, but even with hich may be trifling in themselves." Now, it so happened to a edical friend, that when sailing among that cluster of the West rchipelago called the Virgin Islands, that the anchor was dropped known as the Little Vandyke. But one goodly residence in a facing the sea, embosomed in tropical vegetation, and with its antage smiling through it, was to be seen; and he learned, to his and pleasure, that he was looking upon the birth-place of the elebrated physician whose words we have just quoted. Under a sun, on that little dot of land in the world of waters, did John ry Lettsom first see the light on the 22nd of November, 1744—a of memorable events in his career; for it was that on which he ; on the 1st of November, 1815, he died; and on the 7th, in the Burial Ground, Little Coleman-street, "earth to earth" closed arance in this world. If "the old wife's tale" of the seventh son rn to strange fortunes were correct, surely young Lettsom might n augured to a life of twofold wonders, for seven times did his bear twins, all boys, and of the seventh pair he was one. When x years old he was sent to England to be educated, without any plan for his after-life, but which was determined by his provi- landing at a port where Mr. Fothergill, a distinguished preacher he Quakers, and brother of the celebrated physician of that name, d to be visiting. By the advice of that excellent man, who like a parent over his future life, he was placed under the tuition Thompson, uncle to the physician of the same name, and who was assistant in the school. Between these embryo men of medicine ship, never interrupted, was then commenced. Young Lettsom d here, and under the care of Mr. Fothergill, until he selected the his guardian, in consequence of his father's death. Mr. Fother- pted the responsible office, and placed him, with a view to his rofession, with Dr. Sutcliff, of Settle, in Yorkshire. After the riod of medical pupilage he proceeded to London, and selected nas's Hospital as the medical school in which to complete his n. He was fond of poetry; had read "The Pleasures of Imagin- with delight, and looked forward with no small expectation to the tion of being under its author, then one of the physicians to the on. Such expectations were doomed to utter disappointment,— en as now are too often amiable only in their verses. He found nside the most supercilious and unfeeling physician that he had known. If the affrighted patients did not return a direct answer ueries, he often discharged them from the hospital instantly. s, the author of such poetry,— evinced a particular disgust to and generally treated them with harshness! Lettsom left this niable only in "imagination," after a two years' pupilage, and mmenced his practical illustration—an illustration uniform through- —of his favourite maxim, "Beneficence is the source of true ss, and the occasions of exercising it are innumerable." He was to return to his native island, to take possession of the estate escended to him upon his brother's decease. He found there but cept a number of negro slaves, and these he emancipated. "I was nty-three years of age," said Dr. Lettsom, "and I found myself ndred pounds worse than nothing." He devoted himself to the profession in the Island of Tortola; and here so strenuous were tions, and so extensive his practice, that in a short time he was to return to Europe, and after visiting the great medical schools and Edinburgh, finally took his degree of Doctor of Medicine at in 1769. In the same year he was admitted a Licentiate of our of Physicians; and settled in London under the auspices of Dr. ill. His progress into practice was rapid, and it soon exceeded in ent that of his admirable patron. In 1783 his fees received ed to £3500, and by the year 1800 they had increased to £12,000; Dr. Fothergill's professional income never amounted to half the m. This was a noble reward to the poor planter of Tortola, who had emancipated his slaves though the act precipitated him into debt; a greater danger was that the fine linen and faring sumptuously might be his spiritual ruin, but he escaped this shipwreck also, and the increase of wealth only rendered him more zealous, because more powerful, in establishing institutions for the relief of the poor, mitigating disease, and assuaging pain. Few persons, says one of his friends, had so much power, and none more inclination, to serve their sick and sorrowing fellow-creatures as Dr. Lettsom. He seemed always to consider it as amongst the foremost of his duties to assuage the mind as well as relieve the person of his patient; and although his daily practice made it necessary that he should set a just value on time, he never hurried away from the invalid who, he believed, might be as much assisted by his physician's society as by his prescription; and his heart, not seldom, filled the hands of such as stood in need of his bounty as well as skill.

But we must turn to the facts which especially entitle this good man to our present notice; and it might be sufficient to state that he was an accomplished student of natural history and a great lover of gardening; but he also wrote upon these subjects several volumes, which we will notice in their chronological order. His *Natural History of the Tea-tree* grew to a goodly quarto volume, in 1772, from a mere inaugural thesis which he wrote, *On the Virtues of Tea*, to deliver when admitted to his doctor's degree three years previously. In 1774 he published *The Naturalist's Companion*, embracing very full particulars for collecting and preserving every description of specimens, whether animal, vegetable, or mineral. His *Account of the Culture and Use of the Mangel Wurzel, or Root of Scarcity*, appeared in 1787, and first roused attention to this most useful root. He was laughed at for urging its merits somewhat beyond their just title, but that it deserved nearly all his praise is now shown by its extensive cultivation. In 1796 he published *Hints for promoting a Bee Society*. It would have been a strange contradiction if he had not been an advocate of the depriving system; and he urges eloquently the benefits derivable from a central Society to promote the preservation and keeping of those "industrious labourers whose produce, when accepted by the hand of man, is pure gain." These are but a small section of his literary efforts, but his other works were chiefly in aid of charitable and professional objects. Nor did he only *write* of such subjects, but as Mr. Scott truly addressed him—

> "Not only does thy pow'rful aid supply
> Life to the languid form and fading eye;
> Not only man's frail race thy skill befriends—
> To vegetable life thy power extends;
> Reared by thy hand each plant more beauteous grows,
> Shoots more luxuriant, and more fragrant blows."

This horticultural skill was exhibited by him at his seat, Grove-hill, Camberwell, where he spent "such scanty store of moments" as he could pilfer from his professional occupations. The spot, whilst yet a youth, had attracted his attention, and the resolution he then formed, to become its purchaser, he succeeded in realising early in life. Those who know the spot need no comment from us; and we seem to feel that it partakes of the bathos to add that tradition describes it as occupying the ground of the gentleman who fell by the hand of his nephew, George Barnwell. It will not be without its use to record the sanatory habits of so excellent an authority, who lived to be seventy-one, and for twenty-six years was without a day's illness. He walked to see his patients for two or three hours daily, using his carriage for the remainder; he rarely exceeded three glasses of wine at his dinner; coffee was his favourite beverage; before going to rest he uniformly bathed his limbs in cold water, and in the morning similarly refreshed his entire body. The equability of his temper and the benevolence of his heart aided to promote his health; nor must it be omitted that his serenity was sustained by uniformly pursuing, yet without sectarian bigotry, that example set by Penn—one of the founders of his society—who considered as A FRIEND every truly Christian man.

Meteorology of the Week.—From twenty-three years observations at Chiswick, it is found that there the average highest and lowest temperatures of these days are 51° and 36° respectively. The greatest heat, 63°, and the lowest cold, 22°, occurred on several days during the period. Rain fell on 83 days, and 78 days were fine.

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any have been the queries received by us, in quence of Miss Martineau's letter on Cow-keeping, hed in our last volume (page 334), that we are ed to answer them thus prominently; and though er to no one correspondent in particular, yet we that each will find an answer to his queries if he what follows.

Success in cow-keeping depends upon a strict attention to three essentials:—1st. Selecting a productive cow. 2ndly. Providing her with nutritious food; and 3rdly. Supplying that food to her judiciously.

Now, with regard to the first essential, which has been brought before us in a dozen different forms, it resolves itself into an answer to the plain query put by

one correspondent—"What kind of cow do you recommend?" To which we reply—a Jersey cow if you live in the south of England, or a North Wales if you live in the northern districts; but, let us add, that a North Wales cow will thrive well in our southern counties.

These cows are below the ordinary size of the animal; and we know from many years' experience, that there is no reason for excepting the cow from the universal rule—size and food must keep pace. There is a prejudice that the Jersey (usually called the Alderney) cow requires better, that is, more nutritious food than any other cow; but this is a mere delusion, for, although the North Wales and other hardy breeds may endure cold and hard-living without suffering in health better than the Jersey, yet all are alike in one result—the better fed the fuller the pail.

Whatever kind of cow you may resolve to keep, buy a good one of that kind, for it costs no more to keep the best than it does to fodder the worst, and the few extra pounds paid to purchase her will be repaid from the dairy the first year. Now, there are some points of universal applicability, and to be attended to when you are about to purchase your moolly. 1. *Parentage*—whether the parent on each side were of a stock distinguished for good dairy qualities. 2. *Head* small, fine, tapering to the muzzle; eyes full and lively; horns smooth; and ears small. 3. *Back* straight from the shoulder to the tail. 4. *Chest* deep—rather deeper than the belly. 5. *Hide* thin, moderately loose, and covered with glossy smooth hair. 6. *Barrel*, or body, well ribbed up to the back-bone, and exhibiting a slightly flattened circular outline. 7. *Tail* long and fine. 8. *Fore-legs* straight, short, fine, and tapering from a full fleshy thigh to a small hoof. 9. *Hind-legs* short, hips broad, thighs fleshy, tapering like the fore-legs, and not to cross each other when walking. 10. *Udder* large, but not flabby, well up behind, with four large equally distant teats, and milk veins large and prominent.

Providing nutritious food is the next consideration, and upon this point we shall quote an authority, implicitly to be relied upon.

Colonel Le Couteur says:—

"The Jersey farmer treats his cow with gentleness and care; it might be more correct to say that his wife does so. On good farms she is usually housed at night after the end of October to the end of February, if heavy rain, hail, or snow prevail. It is deemed to be healthful to give a cow a short run daily through the winter, excepting in stormy weather. At this season, which is usually several degrees warmer than in the mildest part of Devonshire, she is fed with a certain portion of straw, from 10 lbs. to 20 lbs. of hay, with about 10 lbs. to 20 lbs. of parsnips, white carrots, turnips, or mangold-wurzel.* The small portion of grass which she may pick up in the winter, with the above quantity of food, enable her to produce a rich and well-coloured sample of butter till within six weeks of parturition.

"Some of the early meadows produce rich grass in March; but the general flush of grass, which comes on generally late in April, is the period when the Jersey farmer looks forwards with anxiety.

"The cow is then tethered to the ground by means of a halter five or six feet long, this is appended by a ring and swivel to a chain, which encircles her horns, closed by a ring and bar; the other end of the halter is fastened to a chain 6 or 8 feet long, which is connected by a swivel and ring to a stout iron stake a foot long; this is driven into the ground by a wooden mallet. The cow having this circular range of 12 feet or more, is compelled to eat it clean. She is usually moved thrice a day, and milked morning and evening; on many farms at mid-day also.

"Under this system, the writer has owned four cows that produced eight-and-forty pounds Jersey, or above 51 lbs. imperial weight, of rich yellow butter per week, in the month of May and part of June."

Now, to the correctness of these directions we can add our own testimony, and that of many practical farmers. Let us also add as of *first importance*—the cow should have unlimited access to *clean* spring water.

As to the mode of supplying the food, we shall quote the practise of a party who obtained the largest returns ever given by a single cow.

Mr. Cramp was the keeper of the House of Correction at Lewes, and the average *profit* from his cow was more than £40 annually. He says:—

"Summer season, fed on clover, rye-grass, lucern, and carrots, three or four times a day; and at noon-time about four gallons of grains, and two of bran, mixed together; always observing to give her no more food than she eats up clean. Winter season, fed with hay, bran, and grains, mixed as before stated, feeding her often, viz. *five or six times a day*, as I see proper, giving her food when milking; keeping the manger clean when she is fed with grains; not to let it get sour; wash her udder at milking times with cold water, winter and summer. Never tie her up; lays in or out as she likes; particularly careful to milk her regularly and clean. Milch cows are often spoiled for want of patience at the latter end of milking them.

"One man would attend ten cows through the year (with the exception of an assistant at milking times). Feeding milch cows as above stated, they will at all times be in good condition fit for the butcher, if an accident should happen. There will be no ground trampled and food spoiled by cattle running over a vast tract of land. I think cattle may be fattened by the same mode of feeding, with much advantage; one-fourth part of the land would feed them, a great quantity of manure made, and the beast fatten much sooner. Cattle so fed have nothing to do but fill themselves and lie down to rest. *No labouring for their food.* I fattened the two cows I had before this, and made them very good meat in about seven weeks (I found it to answer, although I bought the food at a dear rate), giving them a little ground barley or oats mixed with the grains and bran. I think cows would nearly double (in the course of the season) their quantity of milk and butter, by following the above plan.

"It is unnecessary for a cow to go dry long before she calves. The thing will tell for itself. When her milk changes brackish, she should then be dried off; that may be, in three, four, or five weeks before she calves. Milch cows seldom go dry before, unless it is from neglect, poverty, sickness, or bad milking. Let the milk stand two days in summer, and three days in winter, before it is skimmed.

"If grains cannot be had, there is no land but will produce potatoes, and they are an excellent substitute for grains, pounded in a trough, or ground in a common apple-mill, and then mixed with bran. Bran also would be a good substitute for grains, wetting it to the same state as grains, and then mix a little ground oats or malt-dust to separate it. Milch cows may be fed with turnips and cabbages, provided proper attention be paid in doing it. One meal a day of turnips or cabbages will not affect the milk, provided care be taken not to give them any rotten or withered leaves. One rotten turnip or cabbage would do more injury to milk and butter than a cartload of sweet sound food. I have often given cabbage to my cow without any ill effects whatever. I have sown rye, and tares, which I find to answer; they will come rather sooner than lucern, if sown the first week in September. One gallon of rye is sufficient to mix with a bushel of tares. If the rye be sown too thick, it will over-

* A good rule is that a cow to keep her in high health and production, requires four per cent. of her weight in food daily. Thus, if she weighs 1000 lbs., her daily allowance is 40 lbs.—ED. C. G.

power the tares, and injure them; but sown moderately thin, it will support the tares, and keep them from the ground. I have sown oats and red clover, and cut the oats before they come out in ear; the oats will shoot up again (if cut before they are in full ear), and the clover grow up with them, and produce a good second crop; the clover will be in full perfection the spring following. After the crop of rye and tares come off, lucern may be sown, and it will be fit to cut once the same summer, but not later than the middle of October. The lucern will be in full cultivation the next summer, and will produce four cuttings the season. Lucern should be cut before it grows hard and sticky, or it admits waste, and loses much of its goodness.

"Often changing food is good for milch cows. I seldom give my cow two sorts of food following. I cannot be at a loss where there is so great a variety to be had, viz., rye and tares, lucern, cinquefoil, trefoil, cow-grass, clovers, natural grass, green oats, carrots, cabbages, turnips, grains, bran, pollard, hay, &c., &c."

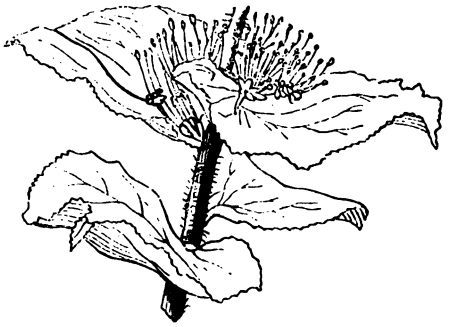
We could increase our quotation of authorities, but if our readers will refer to what is stated in our former volumes, and combine the statements with what we have now said, we think they need be at no loss for direction as cow-keepers. If they do require more information we recommend them to buy a little three shilling volume, by Mr. Cuthbert Johnson, entitled, *The Modern Dairy and Cowkeeper.*

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

ELEGANT MOUSSONIA (*Moussonia elegans*).—*Flore des Serres*, t. 489.—This stove plant was introduced by M. Van Houtte, in 1848, from the mountain districts of Guatimala. Stems and leaves hairy, tinted partially with red; leaves short-stalked, pointed oval, and with round-toothed edges. The flowers, about two inches long, are orange and yellow, spotted inside with purple, and in umbels of three or four, springing from between the leaf stalk and the stem. It is of the Natural Order *Gesnerworts* (Gesneraceæ), and is not unlike *Gesnera elongata*, upon which species, in fact, M. Regel, in 1848, founded this genus of *Moussonia*

M. elegans is another of those useful plants which gardeners find so convenient for decoration during the winter; that being its natural time of flowering. By keeping it somewhat dry and cool for six weeks at the end of winter, and then pruning the young wood close in to one or two joints, according to their strength, and placing it in moist heat until a new growth is made an inch or two long, shaking away most of the old soil from the roots, repotting it in light rich compost of one-half sandy loam and the other half of equal parts of rough peat and leaf-mould, with a little white sand, and then growing it on liberally in close moist heat up to midsummer, it will be ready to stand in a close cold pit as long as the summer heat is such as to keep up that of the pit above 60°, and would come in at any required time from the end of the autumn; or might be retarded a month or six weeks by keeping it in the cold pit longer and allowing it to be rather dry. Gesnerworts, whether in the shape of Gloxinias, Achimenes, Æschynanthus, Niphæads, Streptocarpus, or any other of the forms they assume, are all more or less favourites with gardeners. The order commemorates the name of a distinguished botanist at Zurich, Conrad Gesner, the friend of the Bavarian Naturalist, Von Martius, who also doubled the compliment by naming *Conradia*, a primate genus of the order, after his Christian name.



INCURVED-LEAVED HAKEA (*Hakea cucullata*).—*Paxton's Flower Garden*, vol. i., p. 125.—The genus was named after Baron Hake, an encourager of botany in Germany; and the specific name *cucullata*, cowled, refers to the leaves turning inwards, after the manner of a monk's cowl or hood. This greenhouse evergreen shrub is a native of New Holland, where it was discovered in 1824 by Mr. Cunningham. It has since been found by Mr. Baxter, at King George's Sound, and by Mr. Drummond, at Swan River. It was first figured in the *Botanical Magazine*, t. 4528. It is about four feet high, erect, with round very hairy branches; leathery, heart-shaped, alternate, stalkless, minutely-toothed, milky-green leaves; the flowers are red and small, but showy from being in dense clusters, embosomed between the leaves and stem. It is of the Natural Order *Proteads* (Proteaceæ); 4—*Tetrandria*, 1—*Monogynia* of Linnæus. The New Holland species of this Natural Order are well cultivated in the Kew Gardens, where, Mr. Smith says, they use for them good yellow loam, adding for small plants a little sharp sand; in repotting, keeping the old ball a little above the new soil to keep water from stagnating round the stem. In summer, water is given freely in the evening or early morning, but in winter the soil is only kept slightly moist. The rays of the sun are

never allowed to shine on the pots. The *H. cucullata* does not strike readily from cuttings, but grafts well on any of the freely growing species. It may be raised also from imported seed.

THE FRUIT-GARDEN.

TRELLISES.—If we were called on to give a sound definition of what constitutes a trellis, we should approach the subject with a very measured step. Having, however, a desire to show how things of this character may become matters of great service to many of our fruits, it may be well to observe, that by trellises, or *treillages*, according to some of our old authors, is meant any material whether wood or iron, or anything else, which supports in an artistic way, anything belonging to the vegetable kingdom which may be trained thereon. Position, therefore, is nothing here; it may be horizontal, or, what we shall hereafter have to term, *table trellis*. It may be of the saddle form, or an incline; or it may be some other form; for instance, an arcade over head.

This much premised, the object in view may be proceeded with. It is well known to the readers of this work, that gooseberry trellises were recently dwelt on; and it is a pleasure to find that this homely old English fruit has still many a patron, as evinced by some letters and queries lately received, applauding the plan described at p. 391, Vol. iv. Amongst the rest, our coadjutor, Mr. Beaton, in his funny discourse about the tubs, gave the "one cheer more" for our homely gooseberry. Thus invigorated, then, we proceed to point to some other fruits which deserve trellis culture; and to commence, we will take the currant as "grouping well" with the subject—to use a painter's phrase. To expatiate on the utility of *the red* and *white currant*, whether for the dessert, or, what is perhaps of more importance, for tarts, ices, or other confectionary matters, and to attempt to show how necessary it is to endeavour to secure as long a season of them as possible, would, indeed, be a mere waste of paper. They are frequently used with the raspberry, and we shall shortly show how families may receive a constant supply of both, with the greatest facility, from Midsummer until the middle of November, or nearly so; and, we think, after five months service, the bushes may very fairly be permitted to go to rest.

It will be remembered that a kind of *double* trellis was recommended for the gooseberries; this, however, will not be quite the thing for the currant. Before proceeding farther, let us remark, that we are now speaking of the red and white currants only: *the black* will neither need nor deserve a trellis; not on account of any inferiority as to useful purposes, but because the fruit cannot be made, by any scheme with which we are acquainted, to hang on the bush after becoming fully ripe; therefore, any experiment in the way of prolonging its season must proceed chiefly on the retarding principle, before they change for ripening. We have to propose, therefore, a trellis composed principally of perpendicular rods, on which *alone* the currants should be trained. Such may be put up exceedingly cheap, for we have miles of it in our neighbourhood, as ordinary cattle and sheep fence; but in these cases the wires are horizontal. Of course a stronger connecting rod would be necessary at top and bottom; and this would have to be strained to well-fixed posts, capable of withstanding a great amount of tension. The perpendicular rods need not be nearer than one foot apart; indeed, perhaps no better distance could be devised; and at the bottom of every upright we would plant a young bush, or even a strong cutting. Now some persons will think them too near,—that they will rob each other, and so forth; but there need be no fear of this. It must be borne in mind, that the amount of soil requisite for any given plant is principally ruled by the volume of leaves and shoots which the tree is permitted to retain; and as the trellis we propose is not above five feet, or thereabouts, in height, each plant would be subjected to a rather severe confinement; indeed we suggest this on principle, in order to increase the size of the fruit.

Deeming it necessary to give some information concerning this strained wire trellis, we will say something in the sequel about price, mode of fixing, &c.; in the meantime we will suppose that the ground requires preparation, which, indeed, in all trellising matters would be best performed before the trellis is put down; care being taken that the trellis-fixers place their feet on boards during the operation, or the whole proceeding may be nullified.

Soil.—For the white and red currant, then, the ground must be of a mellow character, and from 18 to 24 inches deep. An upland sandy loam, or indeed any ordinary *free* garden soil, will grow them pretty well; but it may be observed, that in order to preserve them long on the tree, a soil which preserves a steady moisture, yet free from all stagnation, is of great service. Wherever, therefore, stagnation exists, or the ground is very adhesive, it must certainly be drained; and if some fresh maiden soil cannot be obtained to incorporate with the existing soil, the usual ameliorators must be freely introduced—such as rotten leaves, mellowed pond mud, the bottom of the rubbish or weed heaps that have become almost mouldy with age, or indeed any vegetable matter; for the currant is very partial to humus of every kind, or any dark soil of a soft and mellow character, and fine in texture. Of course, in ameliorating a given plot of ground for them, if too adhesive, recourse must be had to the usual mechanical corrections, such as sand, charred material, lime-rubbish, &c. Our friends must not deem us too tedious in thus prescribing for the currant, for although it may be grown in tolerable perfection on most soils, yet we would have those on trellises first-rate, both as to produce, size, and flavour.

We would, in preparing the ground, allow six feet in width for the prepared bed; this will give three feet of prepared soil on each side the trellis. Now, we are aware that this will be a somewhat inconvenient distance for ladies or gentlemen who carry out personally the manipulations necessary; but we may observe, that after the ground has fairly settled there can be no objection whatever to forming a gravel-walk, or a promenade of grass, to within two feet of their stems, which two feet must be held, according to our doctrine, inviolable, inasmuch as we shall recommend an annual top-dressing, by system, in order to encourage abundance of surface fibres. The beneficial action of such is at this day undoubted; and when time serves we shall show their exact use and their immense importance.

Currant Trellis.—These things carried out, we come to the fixing of the trellis, and the kind of plants, with their character. Strong oak posts, charred, being firmly planted at each extremity in the centre of the prepared soil, so as to be incapable of swerving, intermediate posts (which may be of larch) must be introduced at about every six feet. Three horizontal courses of strong wire rod will now be necessary in order to brace the whole together, and to fasten the upright wires to. These rods should be *stout*, for on them will much of the security of the work depend. One wire at or near the top, another near the bottom, and a third midway will suffice; and to these, as before observed, upright rods of about half the thickness of the horizontal ones may be carried at about one foot apart. These rods or wires must all be *stretched* tight, and made perfectly fast at their ends; for no slipping or movement must be permitted.

Planting.—All will now be ready for planting, and, as already stated, we would plant one plant at the foot of each upright rod, and train it perpendicularly, confining it entirely to the one wire. Of course, the sooner the plants are in the better, but, if the period is much advanced, as to autumn planting, and Christmas is at hand, we would defer the planting until the early part of February, when the sooner they are in the better.

As to *pruning*, the currant, under such circumstances, should not be allowed to retain above seven or eight inches of young wood as leading shoots at each winter's pruning; for they must be compelled to develop every eye or bud up the stem as they advance; as the base of such development forms the nucleus of a complete bunch of spurs of a fruitful character; and which spurs, with a proper system of summer pruning or stopping, will remain permanent for several years; and thus this single stem will become a continuous line of spurs, and of course be clothed with currants from bottom to top.

About other pruning matters, more will be said in due time; we must now suppose that the trellis is duly established, and that some protection, as suggested for the gooseberry, is necessary. We are not aware that any necessity exists for adopting any variation as to the currant, for precisely the same arrangement as for the gooseberry will suit very well. The spout from which the canvass curtain hangs, and along the edge of which it may slide with rings, after the manner of a bed-curtain, must be wide enough in the case of the currant to throw the curtain at least six inches from the training wires; for it must be remembered that the currant will make much breast-wood during the summer, and although such must be put under a course of stopping betimes, yet, still as the leaves from the base of such breast-wood perform the all-important office of catering for the fruit, three or four inches must be left on until the fruit is nearly ripe.

The red currant ordinarily grows much taller than the white, and, we may add, much stronger; indeed, it is sometimes apt to be unfruitful through sheer grossness, and in such cases must, without hesitation, be root-pruned; of this, however, more in its proper place.

The soil, then, for the white currant should be of a more generous character than for the red. If the two are to be planted together on the same trellis, it would be well perhaps to plant them alternately; making the white occupy the lower portion, and the red the upper. In such case the red should be trained with a naked stem for half a yard or so, and thus make way for the white below. By such an arrangement the upright rods need not be more than nine inches apart.

And now for *the expense per yard lineal.* The wire may be purchased for about eight shillings per cwt. The oak posts at about one shilling each; the larch posts at about sixpence each; the staples at about one shilling per hundred. As for the labour involved, that is a trifling item; and will generally be performed by a labourer already employed. Canvass, of capital quality, may be obtained for about sixpence per square yard. The above are extracts from genuine accounts now lying on our table, of work really performed. This fence is termed "strained wire fencing," and is being used extensively in these parts for common enclosures, and for the division of fields, chiefly in cow pasturage.

We had almost forgotten to name the strength of the rods or wire. The three horizontal rods for the currants may be about half an inch diameter; but for the perpendicular wires, about No. 1 or 2 on the regular metallic wire gauge will do very well.

R. ERRINGTON.

THE FLOWER-GARDEN.

I GIVE public notice—as the town-crier says, when he has anything particular to announce—that I cannot go out to tea parties this winter, nor see company at home after dusk. I petitioned the editor, as earnestly as I could, to let me off from this COTTAGE GARDENER for the six winter months; now that flower gardening is over for the season. "No! not for six weeks," was all the comfort I received. Formerly I could amuse myself, and while away two evenings in the week writing these weekly letters, and the other four evenings I could devote to whatever chanced to come in the way; but now, what with letters and making dictionaries, I am obliged to "*give notice*" as above; and the more so just now, as I was sadly teased the other evening by an honest man who called in and kept me from my books, till all the rest of the honest people in the parish were gone to bed, when I had to strap to it just as if the tea-things had only then been cleared away off the table. As soon as I could get rid of the fidgets I was in all the evening, I determined on making the subject of his visit my article for THE COTTAGE GARDENER, and here it is:—"Do you, or any of the writers for THE COTTAGE GARDENER," says he, "happen to know anything of *teasing?*" "Happen to know anything about what?" replied I, seeing he was in earnest. "Why I have been *pleasing* and *teasing*, by turns, ever since I took to public writing; but what do you mean?" "Oh! I don't want the information for myself," he said; "but I was over last week at ———, and my brother-in-law, George, wanted my advice about a piece of waste land which he says must be added to his holding, owing to 'the line' having crossed it, and he was advised to break it up and plant it with *teasing.*" "Well," I rejoined, "you do puzzle me now—I have heard of many odd things and ways in my time, but this way about your brother-in-law, George, with his bit of waste land crossing the line, staggers me! I have crossed 'the line' myself more oft than any captain in Her Majesty's Royal Navy, but upon my word your *teasing* is far beyond all the 'lines' I ever yet heard of." "No, but it don't!" was his reply; "they say it pays so well." "What pays?" "*Teasing*, I tell you!" "What on earth is *teasing?*" "What they use to raise the nap on cloth." "Oh! he meant Teazels." "Well, I suppose it is all the same thing; but you gardeners have new names for everything, new and old, that grows; but if you know anything about it tell me, as I told George you writers in THE COTTAGE GARDENER knew everything; everybody says so." He was so importunate, and said the thing was of so much value, that it was of little use to tell him that we gardeners never heard of any person in our lives who knew everything, but one, and he made a sad mess of it; for the very first time he was sent to do something in the kitchen-garden he pulled up a bed of artichokes, and afterwards declared, he never met with such strong thistles before; but supposed the climate made all the difference! Now, if he had pulled up a bed of Teazels in a mistake for thistles, he might have saved his credit, notwithstanding that a good crop of them has been known to be worth more money than the land which produced it. But if it is really true, as my teaser affirmed, that these Teazels are really of such use, or of any use in these days, for raising nap or lowering it, all of us should know something more about them; and to put it to the test, let me say a few words about their history, use, and cultivation, first premising that though I never made cider on the one hand, or planted Teazels on the other, I have seen, for more than ten years, how both were conducted by the best farmers in the West of England, and with my books of reference if I cannot write a short chapter on either branches, it is not for want of materials. Nevertheless, as the subject has never been handled in any gardening

book that I know of, the main points of it are only treated of in this letter.

Teazle, or, more properly, *teazel*, belongs to a small group of genera, only six in number, and *Scabious* is one of them; *Dipsacus fullonum* being our Teazel plant, and the order is called after it *Teazlewarts*. The wild Teazel of botanists, is not the Teazel of the planters and fullers, but an improved variety of it, which, although it will grow in any poor or waste land, grows strongest and pays best on bean soil,—that is, stiff loam with a dry bottom. A fresh piece of newly broken-up waste or common land, such as that from which Mr. Barnes gets his compost for the pine-apples at Bicton, would be the very thing to produce fine Teazle heads; much better, indeed, than old garden soil full of dead vegetable remains. On such new land it is not at all considered an exhausting crop,—probably, because it is of a very different nature from our ordinary crops—provided it is not planted on the same ground more than once in six or seven years; but it is a very bad crop to suck the land poor, if used on old tillage and planted crop after crop. Like the cherry orchards in the west of England, the farmer or landlord often lets out a piece of land to cherry or teazel merchants for a single crop.

The teazel ground is broken-up about this time, or before winter; and the deeper it is stirred at this time the better, if the surface is left rough for the frost to lay hold on. When the ground is dry in March, it is pointed over or ploughed, as the case may be, reduced to a tilth, and the seeds are sown any time in April, when the land is in a good state to work on. Like the management of turnips in England, the seeds are put in variously; but in drills is the best way, and about fifteen inches from drill to drill. Old people say an inch and a half for every month "from seed to head," making the rows just eighteen inches apart; from seed to head, on the average of seasons, being twelvemonths, or, in other words, from the time the seeds prove themselves by showing a full drill from end to end in the seed-leaf,—which rarely happens, owing to faulty seeds, bad seasons, and other causes—till the centre of the plant shows the head of the flower-stem, the Teazel being a biennial, or nearly so. The crop is ready in July, the second season after sowing the seeds. Any one who can manage a few drills of turnips might be trusted to look after the teazel crop: as soon as the plants are up, they require to be thinned to five or six inches apart, the ground well stirred, and as soon as the leaves meet a second thinning is given, and in some seasons a third thinning is necessary; and when the land is very good, the plants at the last thinning should stand twelve inches apart. A clever speculator, who rents high for his crop, will have all the land *spaded* over twice the first season,—that is, a good regular digging, and every weed kept down by hand and hoe; and if any blanks are to be made up, the plants for them will bear moving any time after harvest when the weather is showery. The extent of "*gapes*," or failures, is considered before the final thinning, and a sufficient number of plants are left in the outside rows, or at the ends, to make up a full crop. By the end of October the land should look quite clean, and every row full from end to end, without any "pouch-mark" or "feeting"—that is, that no foot-marks made in wet weather should be seen. In the spring, the soil between the rows is stirred, and the plants are earthed-up like beans, care being taken that neither the tops of the leaves nor the crowns of the plants be covered. Then, with the exception of keeping down weeds, no more is done to them till the flowers fade and have fallen, when the crop is ready to gather; but not in the usual way, like other crops, as they do not all come to maturity at the same time, some being fit to cut long before others. They are as prickly as field thistles, and must be handled with strong pruning gloves on. The stems are cut nine or ten inches be the heads, and then laid into small bundles, and h up on poles to dry under an open shed, as the r would injure their bristly beards if they were exp in the open air; but on fine sunny days you see t hanging out on poles. When they are perfectly d the next process is to sort them into good, better, best sorts; and here the practised eye can tell at look if the sorter has done his duty—*kings*, *middli* and *scrubs* being the usual trade names, accordin quality;—9000 kings, or 20,000 middlings, go to ma *pack*; and the scrubs are not much sought after, un a great scarcity of the others prevails; but being as carious a crop as the hops, the whole trade is a so speculation after the same manner. A good hit in t is a most profitable speculation, and pays abunda Ten packs an acre is a good crop, but twelve p have been secured; and though that might not hap more than once in three or four years, still their cult tion persevered in would pay well, as in the tim scarcity five, six, and seven pounds the pack have b given for them twenty years back; but what they fetch now, or whether they fetch anything, or are at a use, I cannot say, for until my friend put me in min them, I had forgotten all about them for the last fif years.

The heads of Teazels have long bristly awns, or bea like barley, which are finely teethed, or serrated, a gardeners call it; and every tooth, or serrature, is hoo so that when the heads are arranged on a turn-a great drum, and the cloth is made to turn against th the thousands of those little hooks catch hold of finest fibres of the woollen web, leaving the cloth shaggy as a goat, or a badly kept grass lawn; then that our mowing machine, or, more properly, the cloth mowing, napping, or nipping machine, is set a-goin cut off all this shagginess down to a fine velvet-like face. What we call our mowing machine is not more than this very napping machine set differently one of those clever clothiers, to suit our velvety car in every flower-garden. And now, late though it b make the acknowledgment, if *we*, among other thi cause a stir about growing teazels all over the coun and so reduce the price of them for the clothiers, should only be paying off a debt standing agains these twenty years past. Even if steel hooked wires cards, be again in use in place of teazels, we might r teazels enough to put down all artificial substitutes, so help ourselves as well as those who gave us the m ing machines. At any rate, besides being sure eno myself of being well paid for this letter, I think I h shown a desire to repay my part of the obligation flower gardener, by giving or throwing out these hi although some people might say, unless the subject as closely connected with the flower-garden as the ro and revolving knives of Mr. Budding's machine, I sho say nothing about it.

NEW PLANTS: *Colquhounia Vestita*.—It is very lik that, in a year or two, this new plant will make a among such as run after novelties. It came over fr India after the battle of Sobraon, with a high charac and very probably found its way to the nurseries fr the Isle of Wight, where many plants of it were rai from seeds. Lord Hardinge sent it to Sir W. Middlet and I flowered it last year. It is not worth a bac lor's button for the flowers; but, as it will prove nea hardy in the climate of London, and quite so in Dev shire, it will be an addition to the shrubbery, wher will come in as a relief to the dark green masses of folia having a whitish woolly appearance, like some kind *Phlomis*, to which it is very nearly related botanica The flowers are produced in whorls at the joints al with the leaves, and are poor gaping-looking thin neither orange nor red, but something between the t

as not yet appeared in any English catalogue, but idel has it in his Nomenclature. It was named by Wallich, in compliment to a Scotch gentlemen, se patronymic dates back time out of mind, and is of lic origin, a language which is overloaded with con- ants, and vowels too, that are never sounded. *Col- ounia*, sounds as if written *Cohoúnia*, with the accent he u. Those who have the shrub in the open ground should see about some winter protection for it, as it o young yet to stand exposed; and those who have ot, may avoid some disappointment on a future day naking a memorandum of it.

intended to get in some account of a newish hardy green climber just coming into bloom with me, but man with his *teazing* took up too much of my time week. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

RESERVING BEDDED-OUT PLANTS: PROPAGATION— RLET GERANIUMS.—From the numberless inquiries n this subject, notwithstanding all that has been said iously, it would appear that a few more statements ld be acceptable, and of a more lengthy character n can be squeezed into the correspondent's column. ur friend, Mr. Beaton, belongs the pleasure of treat- of these matters in a wholesale way, but many of our ds who style themselves window gardeners, even gh possessing a small box of a greenhouse, and a yards of flower-garden, have not yet so got into the t of generalising, so far as gardening is concerned, as erceive that the same principles of treatment that applicable in large places are equally applicable in ll ones; and, therefore, they expect that something l appear just to suit their own individual case; and e it is that forests of questions and inquiries are e which already have been so repeatedly answered, were it not for the *large mindedness* which the study rdening fosters, our more experienced readers would upon any further allusion to such matters as a per- dose of repetition.

aving transferred from their window-sill, or their ll greenhouse, into their flower plot some favourite ts, which they had tended with anxious care during he vicissitudes of winter, by the time that the leaves utumn are tinged with yellow, they begin to have y a consultation with themselves *how* they shall save favourites from the icy king, so that similar atten- s, which delight as well as employ, may again be ded. Hence, when visiting a gardener of some ex- , and knowing the simple-minded communicativeness rdeners in general, after clearing the way with suc- ive notes of admiration (which the knight of the le takes merely as a matter of course, without feeling of vanity or inflated importance, being too well e of deficiencies which his visitors do not perceive), ments are then made in easy confidence, as to what have got, and what they have done, and what they ct to do; and then, without a direct reference to own special *protegés*, they inquire how the plants ich and such beds are to be preserved during the er. O for the pencil of a Cruikshank to depict serio-comic appearance their countenances often pre- , when told that the most, or all of them, would be d with frost!—a portraiture made up of the doubting, incredulous, with a dash of the felt-to-be-cruel and ible—and all the more pleasing, because, like every amusement, such sensations revealed in the counte- e proceeded from the development of the nobler feel- of our nature, those which lead us to attach our- s to objects with which we have long been pleasingly liar. This feeling of attachment is identically the same, though varied in its appearance, when manifested towards a rational creature like ourselves, to an animal which we pet, or a flower that we tend. So much is this the case, that we rarely find a strong kindly regard manifested in any one of these directions, but we can predicate, with tolerable certainty, as to the views enter- tained with respect to the others. Whoever knew a per- son that was doatingly fond of plants and flowers, that was not kind, and feeling-hearted, and beneficent to their fellow-creatures?

Gardeners are not less attached to their flower-garden and other plants than are our amateur friends in gene- ral; but as the saving of all they require would demand a space under glass, not of a few yards, but the large fractional part of an acre, they make a virtue of neces- sity, and knowing that though each plant is perfect in itself as a whole, it is, nevertheless, composed of an as- semblage of distinct individuals, they take some of these individuals, in the shape of cuttings, which occupy but little of their valuable room in winter, and by their care and attention endeavour alike to preserve the race, imi- tate, if not excel, their previous splendour, and, as man- kind do in other cases, love these young plants all the more for their parents' sake. Once let our friends, young in gardening, get into the habit of looking a-head, of acting with the same forethought in their gardening matters that they display in the other avocations of life, and they will feel more independent at the approach of winter, and have fewer questions to propose as the eleventh hour is passing into the twelfth, as to *how* their favourites are to be saved; though, in the meantime, they may rest assured there is no necessity for apologis- ing for trouble given, as the answering of their inquiries is ever looked upon more in the light of a pleasure than a labour.

For instance, and as confirmatory of these remarks, what more splendid—what more prized for window and diminutive flower-plot—than *the Scarlet geranium?* as evidenced in the inquiries about the modes of its pre- servation. A fortnight ago the matter was adverted to; the modes in which it may be kept will also be found referred to in another part of this day's paper. We allude to it no farther here than to state, that to pre- serve such plants in dry cellars, dark rooms, and hay- lofts, those possessing the greatest firmness and least succulence in the stems are to be preferred, because they are less likely to damp, and more stored with perfect organised fluids; and hence plants grown in pots are always preferable to those grown in the open garden, just because they are firmer and shorter-jointed. In keeping them two things must be attended to:—First, the roots and part of the stem should be kept in a material so dry, such as earth, that there will be little danger of rotting with damp; and, secondly, the air around them should neither be so dry nor so hot as to cause the evaporation of the stored-up juices. To hus- band this all the more, the leaves, should be completely removed, and the succulent points of the stems. I knew of one instance, where the proprietor—resolving to be sure—stored away part of his plants over a boiler used almost every day for farm-purposes; another part were stored near to and over an oven. In the one case the plants were parboiled with steam; in the other, they might as well have been kiln-dried or made into char- coal. Until the buds begin to break—when light must be given, and moisture administered by degrees—they will just require a little more attention than the pro- perly keeping of potatoes. Success in every instance is not, however, to be expected, whatever the amount of care you give them. If you take them up now, repot them, and put them in a greenhouse, you will keep them more easily; but, as they will lose many of their leaves, they will not be much of an ornament during the winter. To secure a few flowers and a fine foliage during winter,

either for greenhouse or window, some of the plants should have had their roots cut round in August, been raised and potted in September, and then set in a shady place; and long ere now they would be fit for going wherever you please. To attain a similar result now, without any previous preparation—and then, after all, with greater chances of ultimate disappointment—the plants should be carefully raised, so as to preserve, at least, all the *larger* roots; potted into light sandy soil; the pots plunged over the rims in a slight hotbed; the temperature of the bed averaging 70°; the sashes then laid over them, but not shut close, either night or day, except in the time of frost; and no water given at the roots until fresh rootlets appeared in the new soil,—though when the sun shined a dusting over the foliage might be given to check evaporation. The keeping of the top cool was to prevent expansion there; while the heat at the roots was to encourage fresh action *there;* and when fresh roots were thus formed, the reciprocal action between the roots and leaves would be restored, and water being given, the absorbing and perspiring mediums would balance each other. The pots should then be gradually raised from the material in which they were plunged, set upon the surface of the bed, and ultimately transferred to the room or the greenhouse shelf.

Now, admitting that all these arrangements were attended with success, still in the case of our window-gardeners, to whom both time and space are scarce commodities, the *whole* of them may be neglected, and a spice of *forethought* will be sufficient to atone for the neglect—to expiate the seeming cruelty of allowing old favourites to perish without an attempt to save them, while future expectations may be no less sanguine, and present satisfaction from beholding healthy vegetation increased rather than lessened. From what has appeared in these pages, and also, perhaps, more strikingly from what will appear in the Dictionary, readers will be perfectly aware that, unlike the goose and gander sauce proverb, different plants require very different treatment as to propagation and culture. Of these, our *Scarlet Geraniums* are the easiest almost to manage. We are not now to dilate upon the methods by which they may be successfully treated, I only mean to meet the present case. Supposing, then, by the end of May one or several plants have been transferred to the flower-border or clump, and have there appeared with a luxuriance and a brilliancy which they never did in a pot; just to prevent nightmare visions of disquietude as to how you were to preserve such large plants in winter,—visions which, however dim, always serve to detract from present enjoyment,—look over your plants in August, the nearer the commencement the better; you will then observe, according to the size of your plant, several or a number of shoots, from three to four inches in length, the removal of which will be an advantage to the plant, as enabling the sun and air to reach its principal stems, and thus cause it to bloom more freely. Cut these shoots off close to the main stems from which they proceed; the firmer and shorter-jointed they are the better. Then remove the lower leaves, say from one or two inches from the bottom of the cutting. Place them down in a row, that the cut-end may be dried; but sprinkle the leaves with water, and put a cabbage-leaf, or a bit of paper, &c., over them to prevent their evaporating. Here they may remain for twenty-four hours, less or more, according to your fancy.

In the meantime, get a small piece of ground dug, enough to hold all these cuttings when standing in rows eight inches apart, and four or five inches from each other in the row. Any aspect will do, but one facing the south will be the best. This done, beat down the dug ground with the back of the spade, and then, if you have such a thing as leaf-mould and rough sand, mix some together, and throw them over the ground to the depth of at least a couple of inches, and beat down again. If you have neither of these commodities, hunt some road-side, and get a few shovelfuls of the drift that has been washed by heavy showers, draw shallow drills, place the road-drift in them, and beat down as in the above case. In both circumstances, insert the cuttings from one to two inches deep, and give the ground a thorough watering. If very dry, it should receive a soaking before road-drift, &c., is put on. This will save future labour, as anything like a thorough watering will not again be required. If very sunny in the beginning of August, and you have chosen a south aspect, a little shading, such as by an evergreen bough, may be required in the middle of the day, but that will only be for a short time. Whenever the leaves, though a little drooping in the middle of the day, yet manage to regain their proper consistency and stand upright, inviting the sun in the morning, they are just giving a quiet hint that your services, so far as shading is concerned, may be safely dispensed with. In the forenoon or afternoon, or both in sunny days, a dash from the syringe, or a spirt from a fine-rosed watering-pot, will be useful, just to check evaporation from the stems and leaves. The advantage of the south aspect is, not that the plants will root so much sooner, but that the plants will be more sturdy and short-jointed afterwards. In September you may raise them with little balls and pot them. Set them a short time in the shade, and then full in the sun; and, by this time, they will be nice healthy stout plants that—provided you can keep them from frost—rather dry, and give them light—will occupy far less room than old plants, look better, and require upon the whole less trouble. On a south border, this season, we planted a number, over part we laid some old sashes, supported back and front by rails, the space between the rails and the ground about a foot being entirely open, and in the other part wholly uncovered, and if there was a difference, it seemed to lean to the part that was *quite uncovered* and *unshaded*. I mean to allow a number to remain with the old sashes over them, and banked-up back and front with turf. Such plants, if potted, may be got to almost any size before bedding-out time, if room and suitable temperature is given them. One objection may be urged against them, so far as bedding is concerned, that they do not flower so freely as the old plants; but this objection has little force, as luxuriance is easily diminished by shallow planting, poor soil, and root-pruning. The succulence of the stems, the organisable material stored up in these short firm roots, support vital action until fresh roots are formed, and thus propagation is so easy. Try the *same* system with *Calceolarias*, and you might as well hold your fingers to the sun! But of this, more anon. R. FISH.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

AGALMYLA STAMINEA (Long-stamened A.); Java.—A curious, handsome plant, with bunches of scarlet flowers something like the blooms of a Gesnera. They are produced in clusters, growing out of the stem between the leaves; and are in that respect singular and curious. The foliage is large and handsome. It is a kind of soft-wooded trailing shrub; and is worthy of cultivation either in the moist stove or the orchid house. The price now is 5s. each.

Culture.—It may be cultivated successfully in several ways; perhaps the best method will be, to combine pot-culture with a branch of tree set in the middle of the pot, and covered with short moss. The plant should be

put in the pot close to the branch, and trained to it. The plant sends out fibres from its branches, something like our common ivy; and these will cling to the moss-covered branch, and thus obtain support, and perhaps sustenance. In this way it will grow fast, and flower freely. The soil in the pot should be a compost of a very open texture, for the roots are very impatient of moisture; indeed, its constitution very much resembles an orchid in that respect. The materials of the compost should be very fibrous: rough peat, very turfy loam, and half-decayed leaves—all in equal parts; the whole to be mixed with broken potsherds and coarse sand. This compost will, with good drainage, keep the roots in healthy action, and thus enable the plant to thrive; whereas, if the common culture of hard-wooded stove shrubs be adopted, the ends of the fine roots will canker and perish, the plant will become sickly, the leaves will turn a bad colour, and if it is not speedily removed into a more genial soil, the plant will die. *Agalmyla* may also be successfully grown in a basket made of copper wire, or wood, in the same compost, and hung up to the roof in the manner of a Stanhopea. In this way it becomes in time a very ornamental object. The shoots should be stopped, to cause them to branch; and each branch must be trained over the basket at equal distances, till they completely cover it. They may then be allowed to droop downwards; the clusters of scarlet tubular flowers will then appear to great advantage.

Cultivated in either of the above methods in the open compost, this plant will bear frequent syringing, which greatly conduces to keep it growing and healthy; and will also keep down the red spider, to the attacks of which it is, on account of its soft fleshy leaves, peculiarly liable. It requires a warm moist stove, and so will thrive particularly well in the orchid house. The temperature should not in summer be less than 75° by day, and 65° by night. In winter it should have a degree of rest, and so the heat may be reduced ten degrees lower. Water may be supplied freely during the spring and summer, but very moderately during the autumn and winter months.

Propagation.—As this plant, like the ivy, sends forth roots freely against a branch in the open air of the stove, it strikes freely with very moderate care and skill. Short shoots make the best cuttings. Take off the bottom leaves close to the stem with a sharp knife, leaving the two uppermost leaves *entire*. Then put in the cuttings in sand, singly, in a 2½-inch pot; place them under a hand-glass upon a heated bed of sand, and in a fortnight they will begin to put out roots. Give them then a little air every day for another fortnight. They may then have the hand-glass removed entirely, and be shaded for a few days longer until they can bear full exposure. As soon as the pots are filled with roots, pot the plants into the compost described above; and when they have filled them with roots again, they will be large enough either to put into baskets, or fix against a log of wood, as described above.

GLORIOSA SUPERBA (Superb G.); East Indies.—It must not be thought, because we often write about new plants, that we shall forget fine old ones. Our present subject, for instance, is not a new acquisition, though there are, no doubt, many cultivators who never grew it, yet it is a fine plant, worthy of notice, and every care the grower can bestow upon it. It is a herbaceous stove dwarf climber (that is, the stems die down every year), with long fleshy tubers, often, when large, forked. The leaves are lanceolate, with tendrils at the ends to lay hold of any object that will support the shoots. The flowers are produced toward the upper parts of the stem, out of the axils of the leaves; the petals are of an orange colour, with stains of chocolate about the middle of each petal; they are very much waved, almost curled, at the edges; and are, when expanded fully, turned backwards; each petal measuring 2½ inches long. It is, when well grown, a really handsome, interesting plant, and commands attention and admiration amongst all its more showy neighbours. Price, for strong bulbs, 7s. 6d. each.

Culture.—In winter the plant should be completely dormant, as much so as a Gloxinia or a Gesnera. About the month of March, prepare a compost of light fibrous loam, turfy peat, and very rotten dung, or leaf-mould; add as much silver or river sand as will give to it a sandy character. Mix these well together with the hand, and let it be in a state neither dry nor wet. Then have ready a sufficient quantity of broken potsherds for drainage, and the required number of new or well-washed pots. For full-grown tubers, pots of 10 inches diameter will be necessary; and for smaller tubers, pots in proportion. When all is ready, bring the pots containing the tubers from their winter quarters, and turn the pots upside-down, and strike them gently on the edge of the potting bench, catching the ball with the right hand; then gently break the ball in pieces, and separate the tubers from the soil, and from each other if they have increased the year previously. And now is the time to attend to *a point of vital importance* in the culture of this fine old plant. In separating them from the soil, and re-potting, the greatest care must be taken that not the least bruise is inflicted upon the tubers, whether old or young, for such a wound would, in nine cases out of ten, cause a gangrene, which would end in destruction. Having, then, got the tubers safely out of the old soil, a new beginner would be puzzled which way to put them into the soil; they have no eyes, like a potato, to guide him: all the surface is perfectly smooth, and nothing but experience can tell him as to the right way to plant the tubers. We candidly confess, the first time we potted a root of *Gloriosa superba* we were as much at a loss, in this particular point, as the veriest tyro in gardening that ever existed. To avoid setting the tuber the wrong way up, we laid it lengthways across the pot, and covered it 2 inches deep with the compost. Of course it in due time came up, but the shoot was close to the edge of the pot; and, until the trellis to train it to was affixed, it had a very ungardener-like appearance. It taught us this lesson:—That *the new shoots of this particular species of plant start from the opposite end to which the tuber had been attached to its parent.* Therefore, in placing the bulb in the pot, the end farthest from that to which it had grown to the bulb of last year should be placed near to the middle of the pot. Place, then, all the bulbs, whether young or old, in that position, covering them about 2 inches deep; and place them in the stove, giving no extra heat or any water for a fortnight. As soon as the young shoots appear give a gentle watering, and, if convenient, plunge the pots in a bark pit, the temperature of which should not exceed 80°. The shoots will push on rapidly, and should have support. For a time a single rod to each shoot will be sufficient, but when they have reached the height of 4 feet, it will be advisable to adopt another method. Place five rods, 3 feet long, of willow or deal, close to the edge of the pot (the strongest shoots from old bulbs are the most likely to flower, and to them only this training is applicable), have a hoop of thick wire about a foot or fifteen inches diameter, place this hoop half way up the rods, and tie each one to it at equal distances; then bring the ends of each rod together, and tie them all firmly together. It will then form a neat trellis to train the plant to. Commence training it round this trellis, at 6 inches from the top of the pot, tying it neatly to every upright rod round the trellis; and, as the shoot grows, continue to train it round again at the same distance from the first coil as that is from the pot. By the time the trellis is covered it will

probably show its flower-buds, and will reward the cultivator with its glorious flowers for all his trouble. As soon as it has done flowering, gradually lessen the quantity of water until the leaves turn yellow, then withhold it altogether; cut down the shoots, and place the pots in a place where they can be protected from wet and cold until potting-time the spring following.

T. APPLEBY.

FLORISTS' FLOWERS.

CONTINUE to pay close attention to plants in pots. The green fly will make its appearance upon the *Chrysanthemum*, and if not destroyed it will disfigure the bloom greatly. Smoke them frequently with tobacco. They require now abundance of water, and will be benefited if they have every third time a dose of manure-water. *Verbenas* in store will also require smoking with tobacco, to keep them free from the green fly. Should mildew make its appearance give them a dusting with flowers of sulphur; pick off all decaying leaves; and give *air* to all plants in frames or pits on every favourable occasion.

Soil.—Now is a good time to lay in a stock of all kinds of soils. Endeavour to get it from upland pastures that have not been disturbed for half a century. *Turfy peat* should be obtained from dry moors, where the wild heath flourishes vigorously. Try to get all kinds of soil from the surface only. *Turf*, 4 inches thick, forms the best compost for plants, either in pots or beds.

T. APPLEBY.

THE KITCHEN-GARDEN.

POTATO PLANTING.—All judicious observers since the commencement of the potato disease must, by this time, be convinced of the desirability, if not the necessity, of the early or autumn planting of this most valuable tuber, in order to secure a crop free from infection. Many, I am sorry to observe, still persist in planting at a very late period, although their crops have from year to year fallen a sacrifice to disease, and yielded little or no return for the labour performed. The present being the season for autumn planting, a healthy well drained piece of ground, not over rich, with any kind of stimulating manure, should be chosen. If the soil be of a stiff tenacious nature, as will be the case in some localities, the best plan is to cast it up into sloping banks, and if any old brick and mortar rubble be at hand, to apply a good quantity of it and fork it in. Old dry worn-out thatch and other mulch are also very valuable materials for the same purpose. Planting the tubers of a moderate size, *whole of course*, ridge trenching at two feet apart, and planting the tubers six inches in depth a the centre of the ridge, allowing the ridges to remai a very good plan.

The planting of potatoes for early forcing should be attended to in succession at this season. Plant t in small pots, tubs, or shallow boxes, so as to l plenty of plants for turning out, when three or inches in height, into large pots, boxes, &c., in the in of peach houses, vineries, &c., or upon the asparagus when the cutting season is over, or on to slight-h hot-beds, &c. We always plant a quantity into s pots, and placing them into any odd corners where have the command of heat, we take them out in su sion as soon as they have made a shoot an inch lon thereabouts, and place them in a colder and more tered situation. By this means we have them ready turning out all of one uniform height. We always, take off all the shoots that make their appearance, the exception of one, and that the strongest; and planting the rows one foot apart, and the plants in rows eight or nine inches apart, we get a fine cro uniform-sized tubers.

ASPARAGUS FORCING.—Apply moderate bottom h and see that the bed, as soon as the shoots begi make their appearance, get a good watering with t water. Cover the crowns with a couple or three in more of light soil, leaf mould, or old tan.

ROUTINE WORK.—Place in succession a few root *sea-kale* and *rhubarb* into heat. Put the *endive* and *grown lettuce* under shelter. Fill out the sloping be with plenty of late *cabbage*, *cauliflower*, *lettuce*, and *endive* plants. Sow early short-top *radish* and *carrots* in succession; and see that young late *lettuces* *cauliflowers* in frames have the surface soil often sti and dry dust sifted amongst them to prevent canker mildew. Prepare for sowing early *peas* and *beans*. *Conqueror* is a good early pea, considered, indeed some to be the best early pea known; the early *Esp* *Prince Albert*, *Warwick*, *Dancecroft's Rival*, and *E* *Frame*, are all well known early varieties. The *E* *New Royal Dwarf* variety of bean is the best. It is and a half foot high, and requires but little space to on. The *Mazagan Long Podded* also, and the *Wo* &c., are all well tried and very good varieties wher tained true to name.

Cardoon and *celery* which have made their gr should be carefully and finally earthed up. If the c grub appears on the celery leaf, dredge it over chimney soot. Clear up all the rubbish, which req continual attention at this season, and place it b charring. It may all be stored in temporary shed in old boxes, or cement casks, for spring use.

JAMES BARNI

MISCELLANEOUS INFORMATION.

SCALES OF EXPENDITURE.

By the Authoress of "My Flowers," &c.

ESTIMATE 5TH.

INCOME—5s. 6d. per day; 33s. per week; about £86 per annum.—Provisions, weekly.

	£	s.	d.
Bread and flour for five persons, 24 lbs.	0	3	6
Butter, 1 lb., @ 1s.	0	1	0
Cheese, ½ lb., @ 6d.	0	0	3
Milk	0	1	0
Tea, ¼ lb., @ 3s. 6d.	0	0	10½
Sugar, 2lb., @ 4d.	0	0	8
Grocery, &c., as before	0	0	9½
Meat, fish, &c.—say meat 6 lb., @ 6d.	0	3	0
Vegetables	0	1	4
Beer	0	2	3
Coals, &c.—nearly 1½ bushel on an average, at 1s. 4d. per bushel, and wood	0	2	
Candles	0	0	
Soap, &c., for washing	0	0	
Sundries, for cleaning, scouring, &c.	0	0	
Total of household expenses..	0	17	
Clothes, haberdashery, &c.	0	5	
Rent	0	3	
Incidents	0	1	
Total expense	1	7	
Saving (more than 1-12th) ..	0	5	
Amount of income, weekly	1	13	

The observations upon this estimate are very useful:—"This is another practical illustration of the correctness of our *data*, as it shows how the artificers and others of the metropolis whose income is 5s. 6d. per day, might and *ought* to live so as to enjoy the greatest portion of comfort that can be derived from that income. This we consider as a very useful estimate, as it is applicable to the condition of a great number of individuals of the most valuable and industrious class of the community. Of two or three accounts given us last year, by persons of this description, but one of them was a regular weekly account, the others affording only averages, or varying in their weekly amount according as the respective incomes per week had been regular or not; neither of the parties having been provident enough to make any reserve as a provision for loss of time, or any other contingency, but having lived, as is the common phrase, "from hand to mouth." This is a radical evil, the consequences of which will be continually felt by all who act thus. But if, on the contrary, out of such an income one-twelfth, or one penny in a shilling, cannot be saved as we recommend, would they save one halfpenny only, or, at all events, make a point of saving some given sum, the good effects thereof would, ere long, become obvious and salutary. It is evident that though the wages of an assistant or journeyman tradesman be nominally 5s. 6d. a day, or 33s. a week, yet he must, from a variety of causes, lose some time; and therefore we recommend that, if he reckon on an average loss of half a day in a week (2s. 9d.), he will regulate his expenditure by the fourth estimate, or 30s. per week income; and if he lose a day or nearly a day in a week, on an average, he should live according to the third estimate, and so on. The man who values his present happiness, or looks forward to a better condition in life, will follow this advice. A clerk or other person with such a family, having an income of eighty guineas a year, by acquiring a habit of living regularly might live comfortably."

These are valuable remarks, and are applicable in their general tenor to *all* classes of persons; but as many of our readers are of the particular class to which they refer, I trust that they will feel an especial interest in them, and derive benefit from their consideration.

Each child is calculated to cost one-twelfth of the income, if the number of children therefore exceed three, a reduction in the scale must necessarily take place. For instance: with four children, the possessor of £86 per annum, instead of living according to the present estimate, must live according to the fourth; if he possess five children, then he must adopt the third, and so on. By very strict attention to these rules, a great deal of expense and misery may be avoided; and if, in the providence of God, a reverse of circumstances takes place, there will be no debts to pay off, or to hang heavily and destructively upon the future efforts and earnings of the father. Nothing cripples and distracts a man like debt. If he is ever so poor, ever so pinched in his way of living, if he can only keep out of debt, he may be called rich, and will certainly be *happy*. But if debt accumulates ever so slowly, if he has to pay back instead of paying forward, however he may regard his own personal comforts, and look well in the eyes of his neighbours and friends, there is a worm at the root of his peace that will quietly nibble on till the leaves wither and die. The countenance will soon and surely tell the tale: there will be the anxious eye, the deeply lined cheek, the contracted brow; there will be the thoughtful silence, the broken rest, the failing health, and, but for the grace of God, the last wretched resources of a desponding mind.

If the husband and wife would only pull together in the right course, what immense efforts might be made, and what extraordinary things could be effected! If men would but forego their personal pleasures for the sake of their families, what a marked improvement would take place in their worldly circumstances, and how much happier they would be after an evening spent peacefully with their wives and children, than when they return home late from the mischievous, expensive, demoralizing atmosphere of the theatre and the tavern! How much valuable money,— nay, I will put it in better language—how much "*children's bread*" is, in an earthly sense, "given to the dogs," in these and similar ways. If every father could resolutely put into a bag every shilling he felt tempted to spend upon ardent spirits, boon companions, and evening entertainments, so called, as *refreshments* after the business of the day, he would be astounded at the sum that would in a few years be ready to educate, or otherwise further his children's prospects in life, besides himself possessing sounder health, steadier spirits, more prosperous circumstances, and a happier heart.

Husbands and fathers are little aware of the pounds that are consumed in the pence and shillings of which they take so little account, neither do they reckon up the tears that are shed in their own homes during their evening amusements; but there is a "bottle" into which those tears are put, and a "book" in which all things are noted down. Happy and many, I trust, are those husbands and fathers who will not be ashamed when that bottle and book are opened!

Economy may be as efficiently promoted by a self-denying father as by the most active, devoted, untiring mother. When both are engaged in the work, what an amount of good is effected, and what peace encircles the happy home!

NOTES ABOUT BEES.

INDISPOSITION alone gives me the opportunity of saying a few words on bee management; and I am more induced to do so, after reading the observations of "An Old Bee-master." I have tried his proposed plan of keeping bees in the shade, and find it answer decidedly. I have to-day removed mine into the shade of hedge and house, and where I have had them before; the amount of honey in the hive, in my opinion, is of much less importance than a proper situation, where they will be surrounded with a sufficient circulation of air to prevent them becoming damp; and in the shade they are not induced to leave the hive; numbers, standing in a sunny situation, do so—they eat, leave the hive, drop in the shade, become paralyzed, and die. In the shade one pound of honey will last as long as ten in the sun.

I will now answer P. V. M. F., who is doubtful as to whether bees collect honey-dew. Undoubtedly they do! I well remember the first time I observed this, twenty-five or six years since, at Wildboarclough, near Macclesfield. I had a hive, *the first*, I picked up on the 14th of July in a pasture-field; it swarmed on the 25th of July of the summer following; a honey-dew fell at the time, and my swarm filled the hive in three weeks, there was so much in that locality; it fell in drops from the leaves of the Hornbeam—a tree much like the beech, but not so smooth in the leaf; but this is only one solitary instance. I have seen it frequently.

I have one thing further to say, that is, as to driving, or transferring. This is best performed in the middle of the day, without any thing like fumigation. All that is required is, first, patience; next, what your correspondents have never hinted at, a stout pair of leather gloves—of the fashion brought from Russia in 1813, 1814, covered with fur—on which the bees cannot be hurt by leaving their stings. A similar cap, with a brim of pasteboard, in the shape of that of a Friend's hat; a net bag open at both ends alike, and drawn with tape at both ends, to be drawn close over the brim of the hat or cap at one end, and at the other under the collar of the coat, and made secure at both points; but I have used one so long that it has become tender, and the bees find holes to creep in, a dozen at a time; when in, all they want is to get out again. Now be patient! Let your wrists be secured over the gloves by a tie or two of tape; this done, you will find you are perfectly master, and your antagonists will soon give in.

Now as to the hour of the day: all have a chance of following her Majesty, which they will assuredly do, and the casualties will be very few. I have turned them up, given them a tap at the off-side, taken a gravy-spoon, and placed a spoonful or two on the *intended* lighting board, and the rest are quickly induced to follow.

If you think any of this worthy of notice, I will give you the history of the removal of a colony *full* of honey ten miles, and its successful introduction into the middle dormitory of a Nutt's patent box in August, on a *remarkably* hot day, where they were for at least three years after. I will now only add one more observation, and that is, I may venture safely to say that my bees have swarmed six times out of seven on Sundays, when I was at home (other days I am rarely at home): did any one ever venture to say that it is possible to cause them to swarm at any particular time,

presuming there is every appearance of their being ready: I have very frequently seen them commence, and once I had the gratification of seeing the commotion within on that occasion. S. J. R., *Barnsley*.

[Anything which you, a practical bee-keeper, can write to us will be acceptable. We shall be very glad to receive the history you offer.—ED. C. G.]

LIST OF CHOICE AND NEW CARNATIONS.

	s.	d.	
SCARLET BIZARRES.			
Achilles (Headley's); a fine variety	7	6	per pair.
Admiral Courzon (Lasom's); extra fine	3	6	„
Amanda (Puxley's); ditto	5	0	„
Captain Edwards (Summer's); very fine	5	0	„
Duke of Wellington (Braggs'); had a First-class Certificate at the Royal South London and London Floricultural Societies	5	0	„
Excelsior (Kay's); extra fine	5	0	„
Grand Master (Holliday's); ditto	5	0	„
Lord Rancliffe (ditto); ditto	5	0	„
Lord George Bentinck (Puxley's); ditto	5	0	„
Splendid (Martin's); very superior	5	0	„
CRIMSON BIZARRES.			
British Standard (Puxley's); extra fine	3	6	„
Constellation (Slater's); ditto	5	0	„
Great Britain (Ely's); ditto	8	0	„
Lord Milton (ditto); ditto	3	6	„
Mercutio (May's); very fine	3	6	„
Malek Adhel (unknown); extra fine	5	0	„
Rainbow (Cartwright's); a good old kind	3	6	„
Rainbow (Hastings'); extra fine	3	6	„
Sir Joshua Reynolds (Hughes'); ditto	3	6	„
Thomas Hewlett (Holliday's); ditto	7	6	„
Thomas Sharpe, Esq. (ditto); ditto	3	6	„
Zorraide (unknown); ditto	3	6	„
PINK AND PURPLE BIZARRES.			
Henry Yinke (White's); extra fine	5	0	„
Mary (Gregg's); ditto	5	0	„
Prince Albert (Puxley's); ditto	3	6	„
Sarah Payne (Ward's); ditto	3	6	„
Twyford Perfection (Young's); fine petals—full and constant	7	6	„
PURPLE FLAKES.			
Beauty of Woodhouse (Mansley's); very fine	3	6	„
Cymba (Ely's); ditto	3	6	„
Earl Spencer (Barrenger's); ditto	3	6	„
Mayor of Litchfield (Clarke's); truly extra	7	6	„
Mayor of Oldham (Hepworth's); ditto	10	6	„
Mango (Ely's); very fine	3	6	„
Queen of Purples (Holliday's); extra fine	5	0	„
Rev. J. Bramhall; full and smooth, and finely marked	7	6	„
Sir G. Schofield (Puxley's); extra fine	5	0	„
SCARLET FLAKES.			
Brilliant (Elliott's); an extra smooth and good flower	5	0	„
Defiance (Haines'); extra fine	7	6	„
Jenny Lind (Merryweather); ditto	5	0	„
King of Scarlets (Ely's); the finest	5	0	„
Queen of Scarlets (Holliday's); extra fine	3	6	„
Queen Victoria (Simpson's); ditto	3	6	„
Rising Sun (Puxley's); ditto	3	6	„
Roi de Feu (unknown); ditto	5	0	„
Sir H. Smith (Hall's); ditto	2	6	„
ROSE FLAKES.			
Ariel (May's); extra fine	3	6	„
Flora's Garland (Brooks'); the best	5	0	„
Lady Ann (Ely's); extra fine	3	6	„
Lady Gardener (ditto); ditto,—a first-rate flower	4	0	„
Lorenzo (May's); extra fine	3	6	„
Maid of Athens (ditto); ditto	10	6	„
Princess Royal (Puxley's); ditto	5	0	„
Princess Alice (May's); ditto	5	0	„

EXTRACTS FROM CORRESPONDENCE

POTATO DISEASE.—Seeing the remarks of Mr. Turne your last week's COTTAGE GARDENER concerning potatoe feel there would be a forgetfulness of duty if I did impart the result of my observations upon the nature of disease in this almost indispensable vegetable. In Febru 1849, I planted Ash-leaved Kidneys from seeds produced b own crop of 1848: the disease had never made its app ance amongst them. I planted quite at the edge of a b dibbled them in four inches, and filled in the hole with charcoal dust. The crop was excellent, and no disease t seen. From the seed of this crop I planted in Febru 1850, in an open part of an orchard, in a much hea soil. But, foreseeing the effects of such a change of I prepared ridges nine inches above the level and dis about two feet. Into these ridges I dibbled my seed, fil up the hole as before with charcoal dust. From this I a good crop, but the last dug-up showed, here and th signs of disease. In the same month, February, 18 procured some Early Cocknies from a neighbour, who discarding them altogether on account of the dis almost destroying the whole crop of 1849. In a not o open situation in the same orchard I dibbled these in ridges, filling the holes with charcoal dust, as with the leaved Kidneys. These are all gathered in and laid dry shed, each layer covered with charcoal dust; and supply my table daily, and will for some time to come. not mean to say that these were free from disease; on contrary, it was very perceptible; but in comparison wit effects in the situation from whence they were discarde mine they were as nothing. Here, then, is the thing w I propose to set before you. Seed unaffected with dis placed in a worse situation is found slightly affected the contrary, seed diseased placed in a better situatio greatly improved. And the inference I draw from t observations, and from a long course of attention to reports concerning potato disease, is this, that as in s way above and beyond our comprehension diseases hith unknown to the human frame in this land are sudd found to exist, with fluctuating effects from year to and at appointed times, and can never afterwards be wh removed, though they may be greatly ameliorated, and found to be induced or lessened by attention to discov circumstances, so this disease in the potato appears to acclimatised itself; and if so, we shall have as good a ch of rooting out consumption from our land as this vegeta malady. Our wisdom will be, then, to gather togethe the data we can of the positions in which this evil predominates, and of those in which its effects are offensive; and so by avoiding the one and embracing other, if we cannot ensure a complete absence, we secure at least the lowest estimate of its power. I inte to have allowed another season to pass before I had tured to make these remarks, and to have seen whethe Early Cocknies in a still better situation would have firmed the report here made, and continued their imp ment; but as Mr. Turner's remarks, and these I now m may induce planters to attend more to the situation circumstances of the seed in the ensuing season than possibly might have done, I am not willing to withhold moment this testimony, in order that the remarks of Turner may have their full weight upon those employe this business. One remark I may be allowed to mak disadvantageous to this system. The tubers are a force themselves out of the ground, and by exposure be spoiled; and while I, in my little way, by daily watching able to cover them with some nice dry soil, the thing w be impossible almost over many acres. N.B. My n bour gardeners laughed heartily when they saw my ri in the spring—saying I had begun at the wrong end; o declared it was no good planting potatoes on that land.—

USEFUL RECIPES.—Perhaps the following method of the apples *which fall from the trees* may be useful to of your numerous readers. I have used them thu several years:—

APPLE CHEESE.—Cut and pare the apples as for a put them, when so cut, into a jar or pan, cover it over a pan, plate, or in any other way; put it into the oven, it there until the apples are baked quite soft; then,

they are quite hot, rub them through a sieve or colander (the sieve is best); then, to every pound of pulp, put half a pound of loaf sugar; boil for half an hour: the cheese is then made. Bitter almonds blanched, the kernels of plum-stones, or the juice of blackberries, may be used to flavour or colour it. It should be kept in *saucers*, and covered over with oil or brandy papers. It cuts quite firm—forms an excellent dish for dessert; is very good with boiled rice, hot or cold, and many other purposes which will, doubtless, suggest themselves to your readers; and will keep for many months if stored in a cool, dry place.

TO PRESERVE EGGS.—The simplest, least troublesome, and certainly a very excellent plan, is to simply pack them in pans, with the broad end downwards, in *salt*—surrounding them *entirely*, and packing them row above row until the pan is quite full. A moderate-sized pan will hold, perhaps, one hundred. They will eat like quite fresh eggs for a week or ten days after packing them in the salt; and will keep good for twelve months, if necessary. I have kept all my eggs thus for years, and *never had one spoilt in the keeping*. Of course it is needless to say, the eggs must be kept in a quite dry place.—CANTIUM.

POTATOES ON DRY SOIL.—After reading the first article in your number of last week, it occurs to me that possibly it may be interesting to you to know—not that I tried any experiments with my potatoes this year, for I was too much of an ignoramus in matters of husbandry to do so—that I planted two long beds in my kitchen-garden, and somewhat less than an acre of glebe (which had not been broken up within the memory of man) with *early* potatoes (the farmer of whom I procured the sets calls them Radicals); also another plot of less than half an acre with *late* potatoes—they were "Early Risers," and he recommended them as having found them freer from disease than other kinds. All three of these plots of ground are *dry*, having light soil; the latter plot is particularly dry and sandy; and among the whole of my potatoes my gardener tells me there were scarce a dozen diseased. This would appear to confirm the view taken by yourself and by Mr. Turner, of Neepsend, that the rot arises from excess of moisture. I should add, that my neighbours, whose land is lower than mine, and moister, nearer to "the moss" as we call it in Cheshire, have suffered much this year in respect of their potato crops. While I am upon this subject, I may state a circumstance which puzzles me, viz., the exceeding partiality with which my potatoes were affected with *scab*. In some places the tubers were quite free from it for many yards together, and then came several yards of perfectly disfigured tubers. What is the cause of "scab?"—REV. D. A. B——, *W—— Rectory*.

[The scab in potato tubers seems to be an hereditary disease; for it never affects some varieties. We think it is oftenest found in soils containing an excess of oxide of iron.—ED. C. G.]

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

THE COTTAGE GARDENER'S DICTIONARY (*G. F. P.*).—You will see by an advertisement that the first number *is* published; and a number will appear every Thursday until completed. When you obtain your copy, which you can through any bookseller, you will understand what care is required in preparing it.

ROCKERY (*R. A. L., Devonshire*).—You say your rockery has been lately finished; and wish to know whether it would be advisable to let it remain without planting until spring, or if any plants are to be inserted now, and what kinds? All dwarf shrubs suitable for rock-work may, with great propriety, be planted in open weather now; such, for instance, as Cotoneaster microphylla, Dwarf Cistuses, Dwarf Rhododendrons, Daphne Cneorum, Epigea repens, Dwarf Genistas, and hardy Heaths, if your soil is, or can be made, peaty. Some of the evergreen rock-plants may also be planted, especially the Saxifrages. *Gold and Silver fish* will live in your pond, though a still one. They will require a protection from frost, by covering a portion of the water with some rails, and spruce-fir branches or a matting of reeds. They will exist and increase without feeding; but it is very amusing and pleasing to feed them, though not absolutely necessary. Gold fish will travel by railroad in water, in a vessel to which air is admitted. They will die in an air-tight vessel.

ROSES (*S.*).—The four *standard roses* that will suit your purpose are:—*Baronne Prevost*, pale rose; *Dr. Marx*, carmine; *Mrs. Elliott*, purple; and *Geant des Batailles*, brilliant crimson. Your six *dwarfs* may be *Aubernon*, bright red; *Saffrano*, pale yellow; *Fabvier*, scarlet; *Souvenir de Malmaison*, rosy flesh; *Charles Souchet*, purplish; and *Gloire de Guerin*. The two best *climbers* for your six-feet pillars are *Brennus*, rosy crimson; and *Laura Davoust*, pink, changing to white. These will furnish you with fine roses from July until the frost destroys the flowers.

SCORCHING (*F. W. T.*).—It is a hopeless task to give reasons for your plants scorching, or, as you term it, "scalding," without knowing the elevation, thickness, size of glass, &c., &c. You seem to think your gardener does not give air early enough; most probably you are right, if your house is very lofty, and at a high angle. However, it might easily be proved, by trying giving air early during one season. Internal as well as external temperature must be studied in giving air. *Peat soil* is best kept in the open air fully exposed.

SCARLET GERANIUMS (*Jane*).—You have such as Tom Thumb from three months to three weeks old from the cuttings, in a spare room, and we do not think you have any reason to be alarmed, or to speak forebodingly of disappointment. See what Mr. Fish says, pages 7 and 8. You may save them by keeping them rather dry in your spare room up stairs, by keeping them near the light in fine weather, and from frost when it is severe. You may also save them in a loft, if there is a window in it, and you throw some material over them when frosty. You will also succeed perfectly with them in your cold frame, giving plenty of air when the weather is fine, and covering up when frosty; but you will *not* succeed with putting them in a dark cellar, though dry, except with a few of the first struck ones that were potted early, and early submitted to a starving system, to concentrate organisable matter in their little stems. In another season you may keep older plants there, if, as you say, the position is *dry*; and you will do this all the better if the plants are kept in pots, because the stems will not be so succulent as when planted out in the open ground. When the latter is the case, both roots and stems should be pruned before lifting them, so as that the latter may be firmer in consequence. This has several times been lately referred to. And lastly, your small plants should stand within a foot or so of the glass in the frame, because that distance will not rob them of light; and if a sudden frost comes, the air between the glass and the plants will take some time to cool. If the pots are set on ashes, &c., they will require to be watered very seldom, but always give as much as will reach all the roots when you do water.

TOM THUMB GERANIUMS (*An Amateur*).—1st. These you have struck in the soil of an old hot-bed, sheltered with glass, and a mat at night, but giving plenty of air, and you wish to know if they can be kept there, as they are so healthy, by banking round the frame with ashes and decayed manure, or whether they should be potted and taken to the greenhouse? Either way will do if you give the requisite attention. The cuttings would have done quite as well in the open air as under the glass. If your bed is raised considerably above the surface ground, there will be less danger of damping. You will succeed better with ashes alone round the frame, or ashes and earth; avoid the decaying manure if possible. If the plants are very thick, you had better thin them and put them in the greenhouse. If you have plenty of small pots, you might pot them all—taking them up with small balls—and transfer them to the frame again, which would check their luxuriance, and they would be ready to be moved anywhere in spring. We almost fear that, in the rich soil of the hot-bed, they will grow too freely. However, we are trying a great many ourselves, by leaving them in the border where they were struck; but they are not so forward as yours. Preserving old geraniums and verbenas that were bedded out has often been referred to (see preceding correspondent); and *verbenas* are best kept by securing small cuttings before they are cut down by frost, and preserving them in a cold frame or greenhouse, or window.

LATE-SOWN CARROTS (*Ibid*).—These should be allowed to grow a little longer if you wish to have them large. These roots are taken up not so much to escape frost, as to escape from being disfigured and eaten by worms, &c.

HER MAJESTY'S GARDENS AT FROGMORE (*A Gardener*).—We cannot say whether these are open to gardeners generally, and at any time. Mr. Ingram is well known for his urbanity and kindness.

SOLANDRA GRANDIFLORA (*Ibid*).—This has never flowered with you, though kept in sandy loam, and also dry from May to October. We should give it a little peat and leaf-mould, and, instead of keeping it dry, we would grow it vigorously during the summer, and then let it have a season of comparative dryness and coolness; and if in the process the leaves fall, that will not prevent its flowering afterwards.

VARIOUS (*Arthur Loftus*).—*Azaleas*—These inserted in pots of sand, and placed in a moderate hotbed in July, should have been rooting. Have you not given too much air? Did you place a bell-glass over the pot? Was not the wood rather hard? if so, they will be longer in striking; and as they are healthy perhaps they will do so still. A nice sweet bottom heat, and a bell-glass over them, would soon lead to success or failure. Your *shrubby Calceolarias* inserted at the same time were inserted too early for autumn and too late for spring propagation. In autumn they strike best when kept cool; in spring, after the plants begin growing, cuttings from them strike best in a gentle heat; we seldom lose a cutting at either season. You would have been more successful close to a wall with a north aspect than in a frame with peat, but the subject will be alluded

to. *Anagallis*—Seeds of this you may procure from any respectable seedsman. Some better kinds do not seed freely, and are therefore propagated by cuttings. Mr. Beaton recommends the *white Campanula carpatica* for bedding, and we wish we had it, as we have no doubt it will be beautiful, if at all as good as the blue. For a taller bed nothing beats the *double Feverfew*: we have had it in dense masses, each flower being from the size of a shilling to nearly that of half-a-crown. There is also the little white *Campanula pumila* for a dwarf bed, and the *Lobelia erinus albus* for the same; also the *Œnothera Taraxacifolia* for a thick low bed; and then, for early work, what is more beautiful than the *white evergreen Candy-tuft*, or even the annual *white Candy-tuft?* For *Greenhouse plants, cheap* and of easy culture, to cut blooms from in winter, see Mr. Fish's article on cool greenhouses, and you will be farther attended to.

BRUNSVIGIA (*A Learner*).—This, which has been out all summer, you may take up from the border; keep it dry, and secure from frost during winter, and either pot it and grow it in the house, or transfer it to the border next spring, securing it from frost by planting it deep enough, and covering it before the heat of summer.

HYBRID PERPETUAL ROSES FOR FORCING (*Ibid*).—Prune *now*, and the buds will be better swelled. Top dress when you like, but do not pot until your plants have flowered. Put the plants in the house whenever you like; you will succeed best if you do not commence forcing until after the new year. See an article by Mr. Fish lately. Force gradually at first, beginning with 45°.

VINES IN A GREENHOUSE (*Arthur Loftus*).—Owing to various reasons, we seldom can answer correspondents in the first number after their writing to us, from the necessity of having the work in a forward state. The second number from the time of writing is, in general, the earliest that can be relied on for an answer, and frequently it must be longer. "Will the vines injure my flowers?" No, not in winter or spring, nor yet in summer if only planted thinly, and plenty of air given, so as to suit the plants more than the vines. If vines and their fruit are made the chief objects during summer and autumn, then you must keep your house closed, and remove your common greenhouse plants out of doors, and supply their places with tender annuals, &c. "The best method of training vines over plants?" In single rods up the rafter; this rod to be cut-back the first season within a short distance of the bottom, and the spurring system of pruning in future resorted to. The best kinds where little artificial heat is used are *White Muscadine* and *Black Hamburgh*. Good-sized vines may be planted; and if roots were proportioned to tops they would bear sooner; but in general nice strong healthy plants in pots, raised from single buds this spring, will answer best. Plant now, disentangling the roots, in a nice drained border, or wait until next spring, starting the plants in the house before planting out in May.

VINE ROOTS DECAYED (*T. E., Leicester*).—Never mind what you are told about "the drainage being ample,"—those roots sent to us were rotted by stagnant moisture; and you explain the source of the mischief at once by saying—"the roots are confined, as it were, in a cistern, by a brick wall." If you cannot get the roots out of that cistern—as by getting them on to the surface in a station, or by breaking down the walls—that vine's roots will continue to rot.

LOBELIA ERINUS GRANDIFLORUS (*Flora Montague*).—This is of very dwarf habit, about eight inches high—colour of the flowers blue. It is a greenhouse perennial, but does well planted out in summer along the front of borders. Other questions next week.

PICKLING TOMATOS (*E. K. V.*)—You pickle yours too ripe, probably. When mature, but not quite ripe, cut them off, leaving a small piece of stalk attached; wipe them dry with a soft cloth; put them into a jar, and cover the whole with cold vinegar; fasten down close, and in three weeks they will be fit for use. By this means you retain most of the flavour of the Tomato. When fattening poultry, if barley or oats are used, it is useful to soak the food; otherwise, it is immaterial.

FLOWER-POTS (*An Amateur*).—When a flower-pot is described as a 60, or 10, and so on, nothing more is meant than that the manufacturer sells them in quantities containing that number—he calls it a *cast*, and there are 60, 40, and so on, to the cast. It has nothing to do with the price. You can get your evergreens at the nearest nurseryman's.

CHRYSANTHEMUMS BLIND (*W. M.*).—You are not singular in having many of your Chrysanthemum-shoots without blooms. You cannot remedy it now. The cause, probably, was that you cut down the stems too soon last autumn, before the plant had finished elaborating the sap necessary for this year's growth. The most deficient part of Chrysanthemum-growing is the want of judgment shown in treating the plants after they have finished blooming.

MULCH (*Rev. D. A. B.*).—No fear of your not being able to obtain this! It is the gardener's term for long, half-decayed stable litter. We verily believe it is in common dictionaries! Your other questions next week.

AUTUMN-SOWN ANNUALS (*Elise*).—These are best sown where they are to remain. The long-fruited Evening Primrose (*Œnothera macrocarpa*) is about twelve inches high; sown this year it blooms the next. *Campanula carpatica* is about six inches high, and takes the same time before it blooms. *Lobelia ramosa* may be sown in the open ground. You are quite wrong in thinking that questioning us is any annoyance; our aim is to be useful, and answering questions is one of the modes of being useful.

PANSY SEEDLINGS (*A Subscriber, Edinburgh*).—Your Pansy is large, but coarse, and petals plaited; colour striking, bright yellow, fringed broadly with purple. A good border variety, but will not do for exhibition unless the petals next year are not plaited. (*F. L.*).—Your bloom (not being packed in damp moss) was dried up, therefore, we can say nothing about the form; but we could make out a golden thread edging round the lower petal, which is unique and pretty. Let us see a bloom next year.

PLUMBAGO CAPENSIS (—).—This Cape of Good Hope Leadwort answers perfectly to your description. It is a very pretty greenhouse evergreen, with blue flowers; introduced in 1818.

DORKING FOWLS.—Any person having genuine five-toed Dorking fowls to sell may write by post, addressed to R. T. Y., Post-office, Throgmorton-street, London.

MANY QUERIES (*W. W. B.*).—A roller-blind would be as effectual *to prevent radiation* from your greenhouse as would mats. In severe weather it is very advantageous to have a similar protection to the sides as well as top. *Rose cuttings* may be struck now in your warm greenhouse, but they may be struck much more easily in the spring. Your *sewage* mixed with earth instead of water (the latter being scarce with you and expensive) would answer nearly as well in rainy weather, but certainly not at other times. It is impossible to say how much mould you should use, since we neither know the strength of your sewage nor the plants you intend to apply it to. Your *brocoli* not heading is caused by the badness of the variety or the poverty of your soil. You may cut away the roots of your *fruit-trees striking into the clay* subsoil, and yet they will bear next year, if the roots spreading near the surface are not too much disturbed. We are glad that *J. B.'s greenhouse* has set you to work, and that you have built one (12 x 6 x 9) for £7.

STRAWBERRIES (*P. A. M.*).—Our correspondent (referring to Cobbett's English Gardener, page 247) wishes to know where he can obtain the *Cisalpine* or *Napoleon strawberry*, or its seed, there mentioned. We suspect it is only the Red Alpine under another name. *All* the back numbers of THE COTTAGE GARDENER may be obtained at *twopence* each, at No. 2, Amen Corner. You shall hear shortly about *vines in pots*.

CLUB-ROOT IN CABBAGE-WORTS (*Gaidheal*).—This disease you say attacks your seedlings in the seed-bed, though your garden is new, and no cabbage-worts have been yet twice on the same plot. This often happens in light soils, the surface of which the fly can easily penetrate to deposit her eggs. Spread soot thinly over the surface of your seed-bed. *The Cottage Gardeners' Dictionary* is not stamped for free transmission by post, but a penny postage stamp would frank it.

PONY WITH IRRITATED SKIN (*Cravensis*).—Give him three balls at intervals of a week, composed each of powdered nitre, 2 drachms; sulphur, 2 drachms; black antimony, 1 drachm; aloes, 1 drachm; powdered ginger, 2 drachms. Treacle enough to form into a ball. Rub your *cow's swollen hock* with a mixture of mustard flour, 4 ounces; liquor ammoniæ, 2 ounces; and water enough to make it as thick as cream.

WEST INDIAN CLIMBER (*Beta*).—This would require to be cultivated in a stove, where it might be sown immediately; but be assured it will not repay you for your trouble.

GAS AMMONIACAL LIQUOR (*J. L.*).—This, after being fixed with oil of vitriol, will keep until spring in an open tank; but rain should be excluded. Other question next week.

STOVES HEATED BY SMALL LIMEKILNS (*A Cymro Glas*).—Our correspondent says, that in Ireland hothouses have been heated with great success by small lime-kilns, and would be glad of information on the subject. We are incredulous of the alleged fact; but even if the experiment has been tried we shall be obliged by any of our Irish readers sending us particulars.

NAMES OF PLANTS (*A Lover of Flowers from Childhood.*)—Yours is *Gazania uniflora*, a greenhouse under-shrub, but may be bedded out in the summer. (*R. W.*).—Your plant is one of those odd-looking thick-leaved *Crassulas*. It should be grown in sandy loam, with a good portion of old mortar or brick-rubbish mixed with it, and well drained. Cuttings root readily in the same soil, if laid to dry in the sun for two or three days previous to planting them. Your species is the *Crassula obliqua*—a greenhouse plant. *Crassula falcata*, or, as it is now usually called, *Rochea falcata*, is a much more desirable species, being one of the most beautiful of greenhouse plants, and requiring the same treatment in every respect.

ICE-HOUSE (*Clericus*).—The mode by which we intend to advise ice to be kept involves no brickwork. Mr. Beaton will be in time with full explanation about it.

FLOWER-BEDS (*J. S., Dudley*).—Instead of having the groups of pointed beds at cross corners, they would answer better to be both next the house; the other two with the square sides being so much larger, would come in for the farthest side from the house, to be planted with the tallest plants you have. In the centre group of beds, you must reverse the beds 1 and 2 for 5 and 6, as you can never see the scarlet Verbena, No. 1, or blue *Lobelia ramosa*, No. 2, over the heads of the blue Salvias in No. 6, unless the ground is much out of level. The rest seem very well indeed; 9—8 and 8—7 on the left hand is a different arrangement from any we have seen; very rich; we should, however, be afraid the balance of colour would there be too strong; but we do not know the Calceolaria you call red in bed 7.

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WEEKLY CALENDAR.

M D	W D	NOVEMBER 14—20, 1850.	WEATHER NEAR LONDON IN 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
14	Th	Beech stript.	29.682—29.576	55—36	S.W.	0.19	18 a. 7	11 a. 4	0 45	10	15 24	318
15	F	Machutus. Apricot stript.	30.720—30.604	48—35	S.W.	0.08	20	9	1 51	11	15 14	319
16	S	Teal arrive.	30.087—29.967	48—29	N.W.	—	22	8	2 59	12	15 3	320
17	Sun	25 Sun. apt. Trin. Hugh Bp. of Line.	30.241—30.209	46—25	N.W.	—	24	7	4 9	13	14 52	321
18	M		30.211—29.987	52—43	S.W.	0.05	25	5	5 22	14	14 39	322
19	Tu	Sun's declination 19° 28′ s.	30.068—29.970	52—31	N.E.	—	27	4	rises.	🌝	14 26	323
20	W	Edmund, King and Martyr.	30.109—30.100	49—41	E.	—	29	3	5a.11	16	14 12	324

On the 10th of November, 1724, Richard Bradley, a Fellow of the Royal Society, was elected Professor of Botany at Cambridge. We have sought, but hitherto in vain, for particulars of his early history. It is not improbable that he may have been educated for the medical profession, inasmuch as that he attempted to lecture on the Materia Medica, and to the cullers of simples have the Royal Society ever had a favourable inclination. That he should have been admitted to the Professorship at Cambridge, however, evinces extreme carelessness and culpable credulity on the part of the appointing authorities, even supposing one of his successors', Professor Martyn's, statement of the event to be the whole truth. "He was chosen to that office," says this respectable authority, "by means of a pretended verbal recommendation from Dr. Sherard to Dr. Bentley, and pompous assurances that he could procure the University a public Botanic Garden by his own private purse and personal interest." Verbal recommendations and pompous assurances would not prevail now in obtaining this responsible appointment; and in the case of Mr. Bradley they were soon found to have been totally deceptive. His inability to read Botanical lectures was immediately apparent; and his entire ignorance of the learned languages rendered him the more ridiculous in one of the prime seats of classical learning. "It may seem strange to assert," says Professor Martyn, "that the translator of Xenophon's *Economicks* did not understand Greek; it is, however, true. Mr. Bradley's being then a popular name, he was paid by the booksellers for permitting them to insert it in the title page." His incapacity as a Professor of Botany at length became so notorious, that the father of Professor Martyn, a sketch of whom appears in our last volume (p. 119), was appointed his substitute. Mr. Bradley refused to submit to the degradation, and attempted to deliver lectures on the Materia Medica in Cambridge, at the Bull Inn. This was in 1729; and his conduct continued so offensive that the University took steps for his removal, but death saved him from the public disgrace, and the authorities from the painful necessity. He died in the course of the year 1732, between which year and his first appearance as a writer in 1713 more than thirty portly volumes flowed from his pen. If his other virtues had equalled his industry he would not have been elevated upon a black pedestal in the Temple of Fame. It may be that the contempt necessarily visited upon him urged him to seek forgetfulness by plunging deeper into the dissipated habits in which he had indulged; but this, without in any form being admissable as his excuse, serves to warn us from that course of sin which once entered upon offers no solace but by hurrying further into guilt. When we look upon the array of his works, and find in them that acuteness of observation and superiority of attainment which are especially their characteristics, and then reflect that his end was ignominious, and that even the place of his grave is unknown, we feel in full force the justice of this conclusion—The fruits of his only excellency remain, whilst all traces of their otherwise vicious author have perished. But very brief notices of some of his publications must now suffice. His *History of Succulent Plants*, commenced in 1716, is a work of merit—still useful for its plates, referred to by Linnæus; his *New Improvement of Planting and Gardening, Philosophical and Practical*, contains a mass of information that must have been highly useful to have widely imparted, and is the more curious from containing a new invention useful for designing garden plots, which invention was only improved in the kaleidoscope by Dr. Brewster a few years since. His *Monthly Register of New Experiments and Observations in Husbandry and Gardening*, published in 1722, contains many valuable communications from the best practical men of the day, not the least curious of which is "an account of transplanting trees of any bigness in the summer season." His *Dictionarium Botanicum*, "for the use of the curious in husbandry and gardening," appeared in 1728, and was the first Botanical Dictionary published in England. His *Gentleman and Gardener's Kalendar* was at the time, 1718, the best directory of work to be done in every month, and in every part of the garden, that had then been prepared. We must here stop from even cataloguing his publications, and to analyze their contents would be useless, even if we could effect it within our allotted space. It would be useless because, if we except some experiments which he instituted to prove the circulation of the sap and the sexuality of plants, they contain little but what our more perfect knowledge has superseded. His works, however, especially the historical portions, may yet be read with pleasure. They abound with information collected from books and men of practical intelligence, with whom he maintained an extensive correspondence. Little as is the original information of which he was the author, yet he must be regarded as one of the best friends of our horticulture. The theoretical and scientific views which he had of vegetation and practical gardening—views which he laboured to illustrate with experiments and knowledge obtained from the experienced—contributed greatly to direct the attention both of amateurs and gardeners into the true path—"science with practice"—for acquiring a correct knowledge of the art. His works ran through many editions, and had a very wide circulation; they coincided most opportunely with the increasing love of gardening, and the consequent rapidly increasing introduction of exotics, and it is certain that they helped to improve their cultivation. It is to be regretted that our gratitude is not due to one less despicable.

Meteorology of the Week.—At Chiswick, during the last twenty-three years, the average highest and lowest temperatures of these days has been 49.2° and 35.9° respectively. The extreme cold observed during the time was 15°, on the 16th in 1841. There were 80 days on which rain fell, and 81 were fine.

Insects occasionally are destructive and annoying only in consequence of their number. This is especially the case with the family of the *Thrips*. We might bear without much irritation a visit from one or two of the *Thrips Physapus*—that minute black fly which causes us such intolerable titillation when it alights upon our face in sultry weather; but we all know that, like the ghosts in Macbeth, "another and another" yet succeeds, until "we'll bear no more." These, however, though intensely irritating to mortal flesh, are not injurious to the gardener; but the same harmlessness does not characterise *the* Thrips—*Thrips Adonidum*—for it is one of the worst pests that can gain a footing in our stoves and greenhouses. Our drawing represents this insect highly magnified, while the short line upon the scroll intimates its natural length.

The larvæ and pupæ are yellowish-white, and the perfect insect is of a dull deep black, with the point, and sometimes the whole of the abdomen, of a rust colour; the wings are dirty white; the horns and legs yellowish, the extremity of the former black. It attacks plants by piercing the under side of the leaves; and one often sees, at the tip of the tail, a globule of blackish fluid, which it soon deposits, and by innumerable spots of this glutinous matter the pores of the leaves are stopped up, and large portions of the surface become blotched. During March the full-grown larvæ and pupæ, which are as large as the perfect insect, are found in groups, feeding on the under side of the leaves; and at this time the recently-hatched but perfect insect either lies close under the ribs, or roves about in search of a mate (*Curtis.*) Flowers of sulphur have been recommended as destructive of this plague, but we believe that Scotch snuff, applied by means of a dredging box (perhaps Brown's Fumigator would answer), is as effectual an application as any. Prevention, however, is better than cure; and if the plants are kept healthy by due ventilation, and of moisture both in the air and soil, this insect may be usually banished.

It is long since we paused from our observations on the science of gardening, but we will now resume (from vol. iii. p. 330) our remarks relative to the *roots* of plants.

We have seen that plants search after and acquire food by the agency of their roots; and the extremities of these appear to be the chief, if not the only parts employed, in the sucking-in of all food not in a gaseous state, for M. Duhamel observed that that portion of a soil was soonest exhausted in which the greatest number of the extremities of the roots were assembled.—(*Physique des Arbres*, vol. iii. p. 276.)

M.M. Sennebier and Carradori found that if roots of

the carrot, scorzonera, and radish are placed in water, some with only their extremities immersed, and others with their entire surfaces plunged in, except the extremities, the former imbibe the water rapidly, and the plants continue vegetating; but the others imbibe no perceptible quantity, and speedily wither. It suggests also the reason why the gardener, in applying water or manure to trees or shrubs, does so at a distance from their stems. A good rule for ascertaining the proper distance for such applications, seems to be to make them beneath the circumference of the head of the tree; for, as M. De Candolle observed, there is usually a relation between that and the length of the roots, so that the rain falling upon the foilage is poured off most abundantly at the distance most desirable for reaching the extremities of the roots.

This explains why the fibrous points of roots are usually annually renewed, and the caudex (or main limb of the root) extended in length: by these means they each year shoot forth into a fresh soil, always changing their direction to where most food is to be obtained. If the extremity of a root is cut off, it ceases to increase in length, but enlarges its circle of extension by lateral shoots.

The distance to which the roots of a plant extend is much greater than is usually imagined; and one reason of the stunted growth of plants in a poor soil is, that the sap collected and elaborated by them has to be expended in the extension of the roots, which have to be larger in proportion as the pasturage near home is scanty. An acorn accidentally deposited on a wall produced a young oak; but this made no progress until its root had descended the whole height of the wall, and had penetrated the soil at its base.

In deep, poor siliceous soils we have traced the roots of trees from twelve to fourteen feet perpendicular without reaching their termination. Those of the Canada thistle, seven feet; common fern, eight feet; wheat, thirty inches; oats, twenty-four inches; potatoes, eighteen inches; onions, twenty inches; carrots, parsnips, and beet, two feet. The distance to which roots will travel, and their tenacity of life, render them often very obnoxious to the gardener. Thus the common couch grass (*Triticum repens*) is the most troublesome of weeds, for every fragment of its far-spreading roots will vegetate; and the sweet-scented coltsfoot and lemon mint are not less to be avoided, for the same cause renders them extremely difficult of extirpation, and they never can be kept within moderate bounds. Yet these creeping rooted plants are not to be condemned without exception; for whoever has grounds under his care bordering upon the sea-shore, the sands of which are troublesomely light and shifting, may have them effectually bound down by inoculating them with slips of the root of these grasses, *Elymus arenarius*, *Carex arenaria*, and *Arundo arenaria*.

The roots of plants, unless frozen, are constantly imbibing nourishment, and even developing parts; for if the roots of trees planted during the winter be examined after an interval of a few weeks, they will be found to have emitted fresh radicles.

It is by their extremities, then, that roots imbibe f but the orifices of these are so minute, that they only admit such as is in a state of solution. Ca reduced to an impalpable powder, being insolubl water, though offered to the roots of several pl mingled with that fluid, has never been observed t absorbed by them; yet it is one of their chief stituents, and is readily absorbed in any combina which renders it fluid.

Roots then must obtain from a soil nourishme plants in a gaseous or liquid state: we may next, t fore, consider what constituents of soils are capabl being presented in such forms. Water can be the solvent employed; indeed, so essential is this li itself, that no plant can exist where it is entirely abs and, on the other hand, many will exist with their r in vessels containing nothing but distilled water. Pl with a broad surface of leaves as mint, beans, &c., have always found increase in carbonaceous ma whilst thus vegetating; but onions, hyacinths, &c., small surfaces of foliage, we, as invariably, have foun decrease in solid matters. The first, at all times, ob nourishment by decomposing the carbonic acid ga the atmosphere: the latter do so in a much smaller portion: hence the reason why the latter are so m more impoverishing crops than the former, inasmuc that they acquire nearly all their solid matter by me of their roots. These observations explain the conf ing statements of Saussure and Hassenfratz on point: the former experimented with broad-le plants; the latter on such as have small foliage. first maintained that plants increase in solid con when their roots are supplied with water only; latter denied the fact.

We took occasion more than once lately to urge u our readers the importance of gas refuse as a fertil It may usually be had at a rate so reasonable as t almost the cheapest of manures, and we are there extremely pleased to receive from a correspondent Crewe, in Cheshire, the following evidence confirma of our own: this letter is dated October 29th, 1850:-

"A short time ago, having occasion to make inquir specting Mr. Payne's Cottage Hives, I intimated that I trying an experiment with gas lime for a crop of wh promising to give you the result.

"The land is three rods under half a statute acre; loam; and for the last *twenty years* has been cropped one half potatoes, the other portion Swede turnips mangold wurtzel, slightly manured; the following wheat, and so on in succession. The crop of potatoes, last year was very poor, the *soil being quite worn out.* on this half acre 30 cwt. of gas lime, fresh from the puri of the gas works, so strong in ammoniacal salts, that the had frequently to desist both in loading and spreading the land, declaring, 'they had never met with so stro *smelling bottle.*' With one six-inch furrow I turned the lime under, then sowed the wheat, passing over a light row; my neighbours affirming that every grain *woul destroyed!!* The plant soon made its appearance, conti strong all the winter, and a most luxuriant dark-g through the summer; running too much into the stra permit its standing against strong wind and rain.

"I have now thrashed and measured an excellent samp *twenty measures* of wheat (88 quarts each), from less

statute acre; I say nothing of the light grain, which was trifling; the straw, very long, weighing 25 cwt. d not fully one half of the crop been laid by the wind, I have thrashed out 25 measures, equal to 50 measures at to the acre. The general produce in this part of re after potatoes, Swede turnips, and fallows, does not , on the average, *twenty measures* of wheat to *the acre*, is considered a good crop.

e farmers can procure gas lime from the gas works t sixpence per two horse-load; *but* they say it is of no *all the strength* being taken out at the gas works. stupidity! It is impossible to convince them that, by g the gas through the lime it is loaded with all those le fertilizing salts set forth in your very able publica- n *The use of Gas Lime and Ammoniacal Liquor*. This let I have distributed to all the large farmers in this ourhood, but it is of little use; you cannot beat down tubborn prejudice.

the spring of next year, I propose to try gas lime for , carrots, and parsnips."

the result of these experiments we shall be glad to ormed.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

C-LEAVED IRON-WOOD (*Metrosideros buxifolia*).—*ical Magazine*, t. 4515.—Native name, *Aki*, but by the settlers *Lignum vitæ*. An evergreen green- shrub, not unlike box in general appearance. It troduced into this country before 1848, from the s of Wangaroa, in New Zealand. It flowered in st at the Kew Gardens. *Branches* hoary; *leaves* t stalkless, in four rows, ovate but almost round, ly turned back at the edge, leathery, dark glossy above, slightly hoary beneath; *flowers* with small petals, and very long white filaments, with yellow rs, almost stalkless, springing from between the and stem at the tops of the branches. It belongs Natural Order *Myrtleblooms* (Myrtaceæ), and to —*Icosandria*, 1—*Monogynia* of Linnæus. It is gated from cuttings of the ripened shoots planted d under a bell-glass; and plants thus raised flower of small growth. It prefers a soil of equal parts loam, peat, and sand. It is a handsome shrub, but gives no idea of the striking beauty, while in flower, of its congeners, such as *Metrosideros tomentosa* (Downy-leaved Ironwood), which flowered last season in the Kew Gardens. Nor does it equal most of the old *Beaufortias*, *Melaleucas*, and others belonging to the same group.

BENTH'S NASTURTIUM or INDIAN CRESS (*Tropæolum Benthii*).—*Allg. Gard. Zeit.*—Introduced in 1849 by Messrs. Low, of Clapton. This climbing greenhouse plant is a native of Bolivia, and flowers in the spring. *Leaves*, with footstalk inserted in their middle, deeply cut into five or six blunt leaflets, bright green on upper surface, paler underneath. *Flowers* yellow, with short straight spur. Resembles *T. brachyceras*, which is raised from tubers. It requires a rich light soil. Natural Order, *Nasturtium-worts* (Tropeoleæ); 8—*Octandria*, 1—*Monogynia* of Linnæus.

VELVETY SPIDER-WORT (*Tradescantia velutina*).—*Ann de Gand*, v. 185.—Introduced from Guatimala by M. Warczewitz, of Berlin. Requires a cool stove. Tuberous-rooted herbaceous perennial. *Stems* branching, downy; *leaves* stalkless, clasping the stem at one end—oval, terminating in a point at the other; *flowers* numerous at the end of the stems, in umbels, with petals and filaments violet, but anthers yellow. Blooms in November. It may be propagated by suckers, and prefers a soil of equal parts sandy peat and loam. Natural Order, *Spider-worts* (Commelineæ); 6—*Hexandria*, 1—*Monogynia* of Linnæus.

VERMILLION-COLOURED CUPHEA (*Cuphea cinnabarina*). *Flore des Serres*, t. 527. This is a new species of one of the most useful genera of all our greenhouse plants, and, like its relative, *C. platycentra*, will probably prove half-hardy. It was introduced in 1848 by M. Van Houtte, from Guatimala. It is a low shrub with slightly hairy branches; *leaves* opposite, willow-shaped; *flowers* pale red, calyx tipped and ribbed with green. A variety—the Dark blood-coloured (*atro-sanguinea*)—has the petals purplish crimson. It requires the same culture as the *C. platycentra*, now so common. Natural Order, *Loosestrifes* (Lythraceæ); 11—*Dodecandria*, 1—*Monogynia* of Linnæus.

THE FRUIT-GARDEN.

FORCING VINES IN POTS.—Several inquiries having been made concerning this matter, and the season for commencement being at hand, or nearly so, we must beg to offer a little advice to the uninformed. The circumstances under which such forcing is carried out by various persons are so different, that it is rather difficult to generalise them; we must, however, attempt to do so, and to confine ourselves to those elementary principles which, under every mode, must receive the utmost attention, in order to command success.

It scarcely need be observed, that the first and, indeed, only *secure* step towards success, is to have good strong plants, with well-ripened wood; without this, all will, indeed, be up-hill work. This is pre-supposing a good course of culture in the previous year, amongst the items of which may be mentioned, as of the greatest import, a thorough exposure of a liberal amount of foliage to the light. Such it is—acting, of course, in concert with a

vigorous root-action—which will produce a *hard cane*, with plump eyes or heads, and, we may add, a potful of healthful roots.

Whilst speaking of preparatory courses, let us name the "rest period." We much fear that small gardeners do not fully appreciate the importance of this; for we have seen pot vines—at least, those intended for forcing—standing behind sheds or outhouses, unplunged and unprotected in any respect. Now, this is very bad gardening indeed. It should be borne in mind, that in such a situation there is every probability of the soil becoming "soured," as practical men term it; that is, having been denied the mellowing and revivifying influences of the atmosphere through stagnation in the soil, it becomes closed up in all those interstices or breathing places, which it is the aim of every good cultivator to preserve in an open state. Unless a special provision is made the worms will enter, and by producing the effects before-described, the whole volume of the roots will become corroded; and, indeed, many of the finer fibres totally destroyed. And although the vine, like the willow, is ever ready to renew its roots under favourable circumstances, yet it is of immense importance to commence forcing with a good potful of sound roots; inasmuch as one of the fundamental principles of successful forcing in this and, indeed, all other fruits is, that the root be slightly in advance of the top.

Another serious evil attends neglect of this kind: a plant in a pot unplunged is exposed to double or treble the amount of frost that one plunged or growing in the natural soil is liable to. This will appear obvious, when it is considered that the ordinary or rather average ground heat is nearly always in advance of the atmosphere by a few degrees; and, moreover, that during very intense frosts, whilst the thermometer in the air may indicate twenty degrees of frost, one plunged a foot deep in the soil would not probably show above three or four degrees. Such are important facts, and should teach the amateur a lesson, not only with regard to his vines, but to *every other plant* in a pot—even an ordinary evergreen or shrub. Thus much for general principles and for preparatory matters, we may now pass on to details.

The whole process of forcing pot vines may be divided into four distinct periods, each of which has something peculiar to be noted; not only with regard to temperature, but also atmospheric moisture and ventilation; they may be characterized thus:—

1. THE BREAKING PERIOD.
2. THE SETTING PERIOD.
3. THE SWELLING-OFF PERIOD.
4. THE RIPENING PERIOD.

Before, however, proceeding further, we may remark on the *structure* necessary or available.

Were we to make choice of situations best adapted to carry out such nice proceedings, we should prefer a pit or low house heated by fermented materials *alone*, up to the period when the "breaking" is fully completed: after which they would require the application of extra heat, which must, of course, be supplied by fire. Not that it is impossible to supply a necessary amount of heat by fermenting materials, but that, at or near the period of blossoming, it becomes necessary to qualify an atmosphere charged with humidity by a change to what may be termed comparatively dry air, accompanied by a somewhat liberal circulation. During the first period much light is not essential, but as soon as the leaf begins to be developed, light becomes as necessary as heat; and by the time the leaf is unfolded, we must hear no talk of shade produced by trees overhead or otherwise: light is the very "life and spirit" of the vine.

The structure adapted to the blossoming period will, indeed, also answer well for the swelling period, provided a heat can be guaranteed, *under the most adverse circumstances*, of 70° by day and 58° by night, independent of sunshine we mean. Added to this, there must be means available for sustaining a liberal amount of atmospheric moisture; not that a damp air is always to be in fashion, but, that by means of a liberal amount of heat, and a proportionate amount of atmospheric moisture, a free ventilation—minus cold draughts—may be daily made use of. Say what they will about cold currents, and some other horticultural scarecrows, there is nothing like fresh sweet air, at least in the case of fruits, where, in order to attain perfect maturity, every hour through the day should be adding growing matter to the system of the plant, for light alone would appear to be incomplete towards this end. "Give us air, or we die," is an axiom established by one of the best physiologists of our day; and let its echo, we say, resound through every bothy, stoke-hole, and gardener's hut in the kingdom!

As for the ripening period, everybody knows that a much drier air becomes absolutely necessary the moment the berries commence their last swelling and incline to the colouring process. The most liberal ventilation possible will be of the utmost service; indeed it becomes indispensable. In pursuance, then, of the course we chalked out for ourselves as to the order of the subjects, we may remark, that a mere pit, which could command 75° of bottom-heat, would be the best place to start them in; and here they may remain plunged in the warm material until the bunches begin to appear, when, if no other source of heat exist in the pit, they must forthwith be removed to some house or roomy pit which can command 70° of atmospheric warmth. The common practice used to be, to place them on a back shelf over a back course of flues (generally the return flue), but in these days of hot water piping flues are almost out of date, and in many houses no piping exists at the back of the house. With due precautions as to protecting the sides of the pots from sudden dryness, these back flues were almost everything that could be desired, inasmuch as, from their being placed nearly in contact with the flues' surface, they possessed one of the great desiderata in vine culture—a bottom warmth slightly in advance of that of the atmosphere. In whatever situation they are placed, there must be no obstruction overhead, for they must have all the light possible, and, moreover, a liberal amount of room to expand a good quantity of foliage to the light.

We will now wind up our observations on this head by offering a few remarks on the mere routine matters, commencing with

The First Introduction of the Pots.—In the first place, if the pruning has not been done, let them be cut back to as many eyes as appear sound and plump. About three or four feet is sufficient for a strong cane; those with less pretensions may be taken back to about four or five eyes. The only maxim in pruning is, to prune short enough; that is to say, provided those eyes which are left can be relied on, for the less space the sap has to travel through, the less expenditure of its powers: therefore, no definite length need be assigned to them in pruning. As soon as pruned, apply a patch of thick white lead (such as used for making white paint) on every pruned end. This will prevent the possibility of bleeding, which they are apt to do on being introduced to heat, especially if powerful young vines possessing capital roots. By-the-bye, speaking of roots, reminds us that such should be examined when the plants are preparing for their course of forcing; *the drainage, especially*, should be carefully examined, and if disarranged, should be made safe. All the loose or decayed soil may be, at the same time, discharged from the surface of the pots, and replaced with a good top-dressing, composed of equal parts turfy loam, of some age, and rich manure.

The plants must now have a dressing applied to the

shoots, and we know of nothing better than lime, sulphur, and soft soap for the purpose. Beat up two ounces of soft soap in a gallon of warm water, add three handsful of sulphur and as much lime as it will carry; stir the whole into a uniform mixture, and anoint every portion above ground with it. The mixture may be applied at the high temperature of 130°, and we will engage that neither an insect nor an egg will be left alive.

And now we say to those who have canes of some three or four feet or more in length, let your canes be bent in some way, in order to make the buds develop themselves with equality. If you can by any means make the cane describe a semicircle, or nearly so, until every bud has pushed, you will be repaid by more good shoots than by neglect of such practice.

We may now suppose the vines fairly established in their new situation, under circumstances previously described; and now the next little affair will be to disbud with a cautious hand all sprouts which may be considered superfluous. The amount of branches to be left depends on two things: first, the calibre of the stem; and second, the amount and character of the roots. A stem three-fourths of an inch in diameter, well ripened, and possessing good roots, should be able to carry from six to eight pounds of *good* grapes; any more would certainly deteriorate their flavour. All useless sprouts, then, being disbudded as soon as possible, stopping must come next in order, and this may be performed at either one or two joints beyond the fruit. Indeed, all the remaining processes are so strictly identical with the general management of ordinary house vines, that we do not care to inflict a repetition of details—such will be found in previous numbers. The whole management, indeed, henceforth, will be just of the kind alluded to; and the operator has only to consider each plant, with its appurtenances, in the light of an individual branch from a tree in a vinery, only he must allow a much greater expanse of foliage, to cater for the extra number of bunches.

Soil.—We believe that nothing will be found superior to chopped turf of a loamy character—half way between adhesive loam and what is termed sandy loam. This should be a year old, and if so, the turfy portion will readily crumble in the hand. The turf from limestone is said to be the best, and probably the opinion is correct. With this we would blend one-third of rich manure and leaf mould in a half-decayed state, and finally add some charcoal grit, or lime rubbish, and, above all, the most complete drainage. All this, however, refers rather to the matter of previous culture. Through all the proceedings we would, if convenient, so place them, as that their pots should be a few degrees warmer than the atmosphere; and, as another point of good culture, take care that the pots are not exposed to a dry atmosphere without shade or protection. If they are unplunged, why a little moss or a piece of old bast may be tied round the pots, or they may be double potted, as some people do with their Ericas.

Watering is a most important affair: let them never be watered until they are really dry; let them never be dry long; and when you do water, give enough to charge the soil all through. Clear water until the blossoms are set, and then a regular course of weak and clear liquid manure until the berries begin to change colour.

When surface roots begin to abound a good top-dressing may be applied, and an artificial rim may be made to the pots, in order to hold the more. The top-dressing may be equal parts old turf and very rich manure.

Ventilation must be well attended to: give air betimes, and take it away betimes; give all your thermometer will allow you.

Another point,—*insects* must be watched. If the aphides attack their young points, fumigation must be instantly resorted to,—not a day lost. In order, too, to be guarded against red spider and the dreaded mildew, use sulphur rather liberally. It so happens that this is antagonistic to both. R. ERRINGTON.

THE FLOWER-GARDEN.

THE evergreen, or nearly evergreen, hardy climber which I alluded to last week is *Bridgesia spicata*, a plant that is named after Mr. Thomas Bridges, an English gardener who went to reside in Chili, whence he sent many plants to his friends and patrons at home. I have been oftener than once, and by more than one London nurseryman, requested to report on this plant if I succeeded in flowering it. The only place where I have heard of its flowering hitherto is the Bury St. Edmund's Botanic Garden. Here it is now in profuse bloom, and it does not deceive me, as new plants often do; it shows how much may be learned about new plants by paying attention to the natural order to which they happen to belong. The *Soapworts (Sapindaceæ)* claim this plant as a member of their order, not one of the twining or climbing plants among which are remarkable for any qualities preferred by the gardener, and *Bridgesia spicata* will not raise them in public opinion; it is altogether worthless as a flowering plant, but being hardy, a fast grower, and not very particular about soil, it will be found useful for covering walls, &c., where such things as *Periploca græca* and *linearis*, or the "tea-plant," are now tolerated. Against a damp wall it would strike like ivy; in large towns, also, where it is difficult to get a green covering to walls within sunk areas and the like, it will be useful.

FLOWER-BEDS.—Now that flower-beds are cleared for the season, and we are allowed time to look back on what we have been doing all the summer, and also looking forward to new plans and arrangements for the next year, and having done so myself, I see one part of what people thought I undertook to perform, when I was turned over from the windows to flower-beds, must needs be apologised for or explained; but I choose the word apology, and I allude to my own rudeness in resisting so firmly every attempt at forcing me—and they were many—to do that which no man ever did before me with credit or any degree of success, and which I firmly believe no man will ever do after me,—no, not the man in the moon himself,—namely, plant a set of flower-garden beds properly which I had never seen save on paper.

Five and twenty years ago I could have done the thing to a T, and to any extent; yea, I had so much philosophy in my head at that time, that if one were to send me a sample of the soil of the place in a bladder I could tell every thing that was necessary to be done for flowers, trees, shrubs and all. I have said already, that to plant a good sized flower-garden properly is the highest branch of the gardener's art, and the most difficult branch too to attain perfection in. Indeed, I am quite sure that there is not one gardener in the kingdom who could plant a large flower-garden now, for the first time, without falling into some mistakes. It is true that we have had writers enough who could do, with the greatest ease, that which I insist on cannot be done at all—plant flower-gardens at a distance which they never saw. I may be excused, therefore, if I exult a little at seeing higher authorities putting this species of humbug into plain English. Hear what Dr. Lindley said the other day in a leading article in the *Gardener's Chronicle*. "The approach of winter brings, as usual, many inquiries as to the manner of laying-out gardens. One correspondent wants to know what

to do with half an acre; another is perplexed with his dozen. Should a tree be planted here? Shall an opening be made there? Would a rockery look well in that corner? Where can I stow away my roses? How shall I carry a walk round a square piece of ground? A thousand such questions arise, but they are put in vain to those who are not on the spot to advise; for it may be taken as a general truth, that mere details of arrangement can never be settled, except upon personal inspection, and a full knowledge of all the circumstances that may aid or injure a given operation either in winter or summer. Plans on paper are useful as guides, but beyond an indication of the general nature of a design they are worthless. A strict adherence to a plan on paper has wholly ruined the effect of many a place, which the genius of the landscape gardener, applied upon the ground, would have rendered charming." Now, if all this be true—and there is no doubt about it—with reference to the whole design of a given place, with how much more force will it apply to that part of it which requires the highest degree of skill to arrange in such a manner as to add to the effect of the whole, and yet form a complete design in itself viewed as such. "It is not the mere unfolding of truth to others which constitutes the real criterion of usefulness in life. The exposure of an error may be fully as necessary and beneficial." So says the author whose excellent book * suggested these remarks and the above quotation; and in reference to the subject in hand, what can be more true than what Mr. Kemp remarks, page 59, speaking of different expedients to hide the offices from the garden or principal views—"The preference to be given to any of these expedients must be determined altogether by the locality, the style of the house, and the tastes and desires of the owner. Either of the methods suggested will require to be applied with skill, or they will, in remedying one evil, only create another." The tastes or the desires of the owner, or the requirements of a given locality, are but too often the last things which enter the brains of dogmatism. My first essay in landscape gardening was on a fine April morning in 1818, or 1819, in the shape of a bundle of stakes to be placed where the genius of a Gilpin dictated; but whether the "tastes and desires" of the noble lord who paid us were consulted or not consulted, I shall not tell; but I recollect the conversations and remarks which arose out of a month's work at "laying out" many plans, as if it were but yesterday. I have, since that time, seen the greatest master minds of the age the first to detect and own faults in their own conceptions before they were half carried out, even when the requirements of the locality, the desires and the tastes of the owner had been the first leading features in the composition. All that the best of us can do with a plan—say of a flower-garden—is merely this, to conceive by the mind's eye a square or circular enclosure surrounded by high walls, the space included to be a level flower-garden, and ourselves looking at it from a door or window in the centre, and on the same level with it. In such a case, it is true, any one having a knowledge of the height and colours of flower-garden plants might say with confidence how all the beds would look best as a whole, and assist each other by a given arrangement in planting them, but now take away all ideal obstruction between this garden in full bloom and the surrounding parts or scenery, and the chances are that cross lights, the shade or colours of a mass of trees and shrubs, of statuary, and of fifty other things, besides the inclination of the ground, may conspire to render your fine composition, "by this writer in THE COTTAGE GARDENER," a really namby-pamby thing after all; and so with the best of us, also, in first planting a flower-garden in a new locality, we must see the effects of all and every thing in and surrounding the flower-garden, until the a effects are produced before us in succession as season rolls on.

But to return to Mr. Kemp's book. As soon as I the first notice of it I made up my mind at once to it; but not from any curiosity, or a desire to learn my time of life—any new-fangled notions that it n recommend; but from a knowledge of Mr. Kemp's sonal history for the last dozen years, which is ju counterpart of my own doings during the same pe He left London under the auspices of Mr. Paxton; Chatsworth, large as it is, was not sufficiently so fo such heads; and he had Mr. Kemp removed to whe now dates his book from—*Birkenhead Park*; and since Mr. K. may be said to be working out in pr such ideas and views as Mr. Paxton entertains on scape gardening; at any rate that is the way the *dener's Chronicle* accounts for the subject matter o book—a very good way, indeed, to sell the book, very uncharitable way of dealing with the author, although I have no more knowledge of him than gather from the book itself, I am quite sure woul write a page of it either for Mr. Paxton, or fo Lindley, or Dr. Beaton (when he is one), or Dr. body-else, if he could not subscribe to every word himself. Of course all this was meant; but still an critic might, from the context, set it down again poor gardeners that, because we are not overburd with money, and must be digging ground for cabb or shooting caterpillars, we are not so independe mind as we might be. All this time I was wo under a higher artist than Mr. Kemp, and can s therefore, from experience; though my head is too ever to write so good a book as he has, but I sub to every syllable of the work, except what is sa making new walks; and here, too, Mr. Kemp before nine-tenths of those who flew to London to cipate my own way of constructing walks and road he wants a dry bottom for his walks, but not by op a trench over "retentive" soil to collect water fro land right and left, and placing his walk as a cov for the drain.

When I reflect on the *awful nothingness* of ma the large doses of landscape gardening I have had t down for the last twenty years,—yea, for the best t them,—I ought to be thankful that the rising re young gardeners are not likely to have sore throats similar doses. Another great recommendation o book is, that it is as cheap as THE COTTAGE GARDE And here, again, being an old rider, I must go i saddle to say, that some authors and publishers are much in their own light, and keeping light from us t a false notion, that a book is not respectable enough u a high price is asked for it. No such thing! W can there be a more respectable work than THE TAGE GARDENER, which every respectable person i three kingdoms reads and delights in, not one of v has yet sent us a complaint about its cheapness our NEW DICTIONARY will be a great deal cheaper; a are quite confident already that it will pay us better if we asked three times the money for it.

Only one more book is now wanting about garde which would teach everybody to plant his or her little flower-garden just in the way best suited locality; but we must have the spirit of prophecy l that book can be printed, or else fall back on unintelligibleness of the old landscape gardeners Now, on the supposition that the coast is clear, o these observations are understood, I propose and pr to every reader who will take the trouble to send Editor a plan of a flower-garden as it was plante summer, or as it is intended to be planted next s with a list of the plants to fill the beds with, that I point out such defects and improvements in the

* "How to Lay-out a Small Garden," by Edward Kemp, Landscape Gardener, Birkenhead-park.

ing as may appear to me, without any reference to the surrounding parts, which of course cannot be taken into the account without being on the spot. The only aids that I ask for are a black stroke on one side of the plan to represent the garden-side of the house, and a few words — *not a long letter*, for it puzzles one — saying how the ground lies, whether it be level from the house across the flower-garden, or either rising or falling much from a level line. The shapes, or sizes, or the plants in use, I shall say nothing about; the whole thing will only be a private affair between confidential friends, as it were. In this free country every one has a perfect right to choose the shape of his own flower-beds, and choose what to plant in them, without being called to question: provided always that we do not push our own fancies in these things before the world as things to be copied from, or recommended to our neighbours, and calling them stupid names if they differ from us. An exact copy or duplicate of the plans sent to us should be kept to read the answers from, with letters or numbers referring to the different beds. A plan of this sort need not be drawn to a scale; indeed, they give less trouble without a scale, if the different proportions of the beds are shown, by making some smaller or larger, just as they stand. The column for answering correspondents will be the place to look for the explanations; and no reader need expect to learn from the answers except the party concerned.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

PRESERVATION OF BEDDED-OUT PLANTS: SHRUBBY CALCEOLARIAS.—Next to the scarlet geraniums, to which I adverted last week, few things are more desiderated by the amateur with limited space than the brighter coloured *Shrubby Calceolarias*. And well do they merit his attention; for, after having gemmed his window or Lilliputian greenhouse in the early months of spring and summer, they only require, when their beauty is on the wane, to be slightly dressed, reshifted, or fed with manure water, or transferred to the flower clump, to flourish with increased beauty during the later summer and autumn months. I have alluded to the *brighter* coloured among these plants; for in this fastidious age though, like myself, you have still a love for purples, can even admire cloudy browns, and entertain something approaching a passion for the somewhat nondescript bronzy-orange Kentish Hero—the first to bloom, the last to give over, with the exception, perhaps, of the diminutive flowered *rugosa*: you must keep all your admiration to yourself, and expect all your Calceolarias to be sneezed at with disdain by the arbiters of fashionable taste, unless they be gorgeous in their orange and dazzling in their yellow. Let the present crusade in behalf of the bright and the warm in colour be carried right cheerily to its legitimate conclusion, and the eye, formed in general to grasp and comprehend within its range the beauties of every tint and shade, fatigued with the monotony of even varied and contrasted brightness, would be forced to seek in the wilds and wolds of nature the *repose* and enjoyment denied it in the garden. It oftener marks a *little* rather than a *great* mind, ruthlessly to oppose itself to the general stream of taste, even though that taste be of a questionable character: but co-existing with respect for the opinions and practices of others, it is perfectly possible to maintain and practise a thinking of our own; and if we only continue long enough, we shall find that, just like ladies' dresses, the taste in flowers and their most prized colours will so often change, that we shall frequently unconsciously find ourselves in the very height of fashion. Even those who can see no beauty in a Shrubby Calceolaria unless it be of a determinate colour, and that colour brightly yellow, may find out that that yellow is alike heightened and softened when placed in juxtaposition with a sober purple.

"All very nice," say several correspondents at once; "but there now," says one, "are my few plants which I put in that little border in June, and they looked so nice—are blooming now, even in November—that I put off and off meddling with them, and fear I shall lose them, yellow and purple too!" "And let us catch our *fish* before we dress them," says another: "I put in cuttings in nice soil in July; *gave them air, too*, regularly every day, but I had no success—all of them died; only let us get the plants, and we will enter then, with real zest, into the question of fashionable colours." Now, though we hinted last week that the *Shrubby Calceolaria* must be propagated in a very different manner and time from the Scarlet Geranium, one thing respecting them, so far, at least, as our friends with limited space are concerned, is similar, namely, the importance of propagating a young stock, which would take up little room in winter; and which, did they receive the same attention as old plants, would be more hand some than them in spring. In propagating these plants, gardeners strike them successfully at any period; but though they manage to get plants in eight days in March or April, they would require, with all their care, something like six times the period in July; and, therefore, unless in a very particular case, propagation in summer is abandoned. Though in different climates we change the period of a plant's blooming, we do not greatly change its nature; for amid succeeding generations it retains the traces of its primeval existence.

Flourishing at a high altitude on the hill-sides of Chili and Peru, these Calceolarias chiefly come into full bloom after the growing strength of the sun has commenced melting the snows on the Andes above them. Hence, in this country, the chief period of *flowering* is when we have the longest and brightest days; and the chief period of *growth* is early in spring and late in autumn. These latter are the times when propagation is most easily effected, because nice young shoots are obtained in abundance, and the evaporating and decomposing processes from heat and light are at a minimum rather than a maximum, which they would be in summer. Of these two periods the claims are nearly equal:—In autumn the cuttings must be kept cool, and the later they are put in, until the middle of November or later, the less time they will take; in spring, after fresh growth has commenced, by giving an additional stimulus to the naturally-increasing heat, and preventing evaporation by placing the cuttings in a sweet hot-bed, plants will be made in a third of the time. It is owing to this fresh growth, and the activity of the vital forces in spring, that so many plants are easily propagated then. Those who prefer larger plants for winter than they can obtain from autumn propagating, and yet not so large as those growing in the border, should propagate late in April. Set the plants in their cutting-pots, when struck, behind a north wall, and pot them in July or the beginning of August. I have often resolved to do this, and thus save the trouble of taking up any out of the borders; but though hundreds may be left after the general planting, yet, somehow, they always melt away before the autumn comes.

Lest some of our friends should think that we were counting our chicks before we had got our eggs, I shall, before saying a few more words upon propagation, advert in the first place to the preserving a stock to propagate from, premising, that at present it contains the plants turned out into the borders. The lesser of these, if raised and carefully potted in September, and set in a shady place, would by this time be well supplied with roots for keeping in a healthy state during the winter.

To attain equal success *now*, you must move your soil and pot to the plant, and raise it with a good ball, using for this purpose rather a large pot; and this will take up your room, and require a little attention to shading and picking off decaying foliage. You may raise your plants, reduce their tops, shake a part of the soil from their roots, so as to squeeze them into smallish pots, and then set them in your window and greenhouse; and though in the dull weather of winter, from the little evaporation from the foliage, the plants will look tolerably well, you may consider yourself fortunate if you lose not more than fifty per cent. before the month of March, after all your labour, when young plants would have been getting better every day, and merely because there was no growth of roots commensurate to the demands made by sun and air upon the branches. Supposing that you had no means of bottom-heat, the plants would have done better transferred with all the soil that would adhere to them, and laid in, in a cold frame or pit, after reducing the tops, or packed in a large deal box, and set in a cool corner of the greenhouse; because in both cases the roots would escape the alternations of temperature and moisture to which they are liable in pots. But if you can command a little fermenting materials—such as tree leaves and dung, which should be thrown in a heap, to heat well before using it, in order that the slimy gentlemen may be set a-flitting—and, in addition, you have such a thing as a spare frame or pit, then success with your plants is next to certain. Whether you pot your plants singly or reduce them both in branches and roots, so as to squeeze half a dozen of them round the sides of a largish pot—say eight inches.—in either case plunge them to the rims in the fermenting material, if not above 70°; or, if it please you better, put some light sandy soil on its surface, and turn the plants into it without pots. Whatever plan is adopted, air should be left on back and front in all weather not very cold and frosty; the object being not to excite the buds into growth, but the production of fresh healthy roots, so that when the returning warmth and sunlight of spring set the top moving, there may be plenty of resources in the root to maintain a reciprocal action. During winter, if the soil was fair for moisture, little or no water would be required in such circumstances; but the foliage in sunny days would need a little dusting from the syringe.

Propagation.—By saving a few of such plants you may increase your stock to any desirable quantity in spring. If to be set in a window or greenhouse, the young shoots should be taken off when from one to two inches in length, and before they are drawn and spongy, inserted in pots half filled with drainage, the other half with sand, loam, and leaf-mould, in equal proportions—the roughest over the drainage, the finest at the surface, and over that a slight dash of pure sand, which keeps the surface firm, and does not allow the air too freely to penetrate to the base of the cutting. Water, and then place a bell-glass over them, and shade from bright sunshine; or, plant in small pots, to be set in larger ones, and a square of glass over each, when shading will in most cases be unnecessary, as the sides of the larger pot will in general be sufficient. The bell-glass and the square of glass are to prevent evaporation from the foliage. After the first watering, little more will be required than dusting the foliage in the day-time. But if a quick return is desired, the plants should be allowed to grow a little more, and a hotbed must be prepared—a cucumber bed, in March or the beginning of April, especially its front, would just be the place; and there, if fifteen inches from the glass, and kept close, they would require neither bell-glasses upon them nor any shading. A slight dust from the syringe, when the sun was bright, would suit them better. In autumn it is as well to cut to a joint when making a cutting, because, though the roots seldom come from thence, it is so far a security against the base of the cutting damping; but in spring, when the hotbed system is resorted to, there is no necessity for pruning of any sort, but merely take the cuttings with a sharp knife—joint or no joint—and insert them immediately. The close atmosphere and the moist exhalations from the fermenting matter prevent the transpiration of the juices of the cuttings, and present them with a feeding medium. The air admitted is given almost solely at night, in order to afford a fresh stimulus from fresh oxygen.

Our friend who failed in striking these plants in a hotbed in July, even though he gave air every day, will now see that, as that was the height of the flowering season, he would have succeeded better if the place had been the coolest and shadiest,—if, in fact, he could have mingled an atmosphere of the dog days with three atmospheres borrowed from an ice well: and, also, that though there are exceptions, yet, as a general rule, the *closer* cuttings are kept the sooner they will strike. A deciduous cutting of a Gooseberry requires no shading from air and sun, because it possesses a store of ripe organised material: and the same warmth and light that expand the buds expand the part in the soil, and cause the protrusion of roots. A green cutting of a Calceolaria, &c., has not its juices so fully organised—air and light admitted would, by the medium of its leaves, deprive it of its juices; and, therefore, we exclude the one during the day, and subdue or diffuse the other before reaching the cutting—so that the leaves shall evaporate slowly, and feed slowly upon the surrounding medium, until roots are produced, and the balance of a perfect plant again restored.

Those wishing to propagate *now*, will find it is not yet too late. They may place them in their window or greenhouse, as never needed in spring, but after a week or two they must give them the warmest corner. They will also do well in a slight hotbed, where the temperature is at the bottom from 50° to 60°, the top ranging from 40° to 45°. They will also do well under a hand-light by the side of a wall, where drenching rains are thrown off. But in such a position you must secure them from worms by a sprinkling of salt; from being soaked by a drainage of cinders, &c., below the soil; and then be provided with a nightcap or two to place over them in the time of frost and snow. They stand damp in winter wonderfully well.

I prefer the end of September and the month of October for the autumn propagating, and then place them under hand-lights, or in pits without any artificial heat. This season having a few old lights at liberty, I thought I could try them a little earlier, and stick them in a north border, and also some fancy Geraniums in the end of August, laying the lights over them, and closing the space up all round. With the exception of very few, they are now struck; not one in five hundred has died; there is scarcely any above one inch in height. They have been left in a great measure to themselves. But I have already exceeded my space, and must give the outline of their simple treatment at some other time.

R. FISH.

P.S.—I have been informed there is, though I have not yet read it, an article on the propagation of Calceolarias in the *The Gardener's Magazine of Botany*, by my old friend J. C., to whom flower gardening is so much indebted. I know not whether our practice be similar now, but my uniform success for many years arose from *imitating* his method, when some fifteen years ago he stood almost alone in the ease and certainty with which he managed these flowers. He has also raised several varieties, valuable alike for pot and bed. Every one who loves compactness of growth, with smotherings of bloom, must be acquainted with *Cnic's*

r. One feature more—Mr. C. never keeps his good gs to himself.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

IIDS THAT THRIVE BEST ON BLOCKS (*Continued from page* 65).

:UTICARIA STEELII (Mr. Steel's); Demerara.—Sepals petals pale buff, richly spotted and streaked with ish brown; lip white, with rose-coloured stripes thwise. This is a fine plant when in bloom. The ers are large—nearly three inches in diameter, and produced on short stems, generally in pairs, close to block. The leaves are round, like a thick rush, and g down to a great length—often as much as from e to four feet. They are long-lived. We have leaves e fresh at four years old. A very interesting plant.

ulture.—This is one of the plants we wrote about in : COTTAGE GARDENER sometime back as requiring liar treatment, and we beg our readers to refer to account. In this place we shall only remark that hrives well on a block, but better still if the two hods of growing in a basket and on a log are com- d. A square basket that will just hold the block ld have the block, with the plant fastened to it, ly fixed in it, and be hung up to the roof vertically; is, the basket should be hung sideways, which will w the leaves of the plant to droop without obstruc-

OPHRONITIS CERNUA (drooping S.); Rio Janeiro.— is is a very neat, pretty plant, with reddish sepals and ls; the lip has a dash of yellow in the centre. 21s.

. GRANDIFLORA (large flowered S.); Organ Mountains.—This is a splendid gem even among orchids; the le flower is of a beautiful orange-scarlet, and very e in proportion to the plant. Each flower is often er than the whole plant. We can hardly say too h in its praise. 63s. A considerable quantity was orted about two years ago by J. Hadwin, Esq., of erpool. Being a merchant in that town, and having nexions in Brazil, he requested a captain of one of vessels to procure him some orchids. The captain, lease his friend, engaged a number of blacks, and t with his party to the top of the Organ Mountains. saw this Sophronitis growing on the tops of the ost trees; but all his offers and persuasions were in to induce his attendants to mount the trees and g down the air plants that he coveted for his friend. fear of snakes and other noxious animals was too h for his sable attendants' slender courage to sur- unt. There was nothing for it, in order to accom- h his wishes, but to fell a tree on which these coveted s were growing. To work, with a right good will, natives went, and soon cut through the stem of the ; but, alas! the trees were so interlaced with pers that it would not fall. Still determined to mplish his object, he set his assistants to work to down another tree; but he could not obtain his ob- till five or six were cut through, and then at last came down with a tremendous crash, and he was bled to bring home a great number of branches ered with this beautiful *S. grandiflora*, and several r species, such as *S. pterocarpa*, *S. violacea*, and e other genera of less value. We have now a plant *S. grandiflora* in flower that was one the persevering ain brought home with him. This anecdote will our readers some idea of the trouble and expense urred in procuring orchids from their native localities, ch expense, combined with their slow increase, and cost of cultivating them in our stoves, are the reasons why they are so expensive when compared with other plants.

S. VIOLACEA (violet-coloured S.); Organ Mountains.—This species, though not so showy as the last, is worth cultivating on account of its pretty violet-coloured flowers. 21s.

S. PTEROCARPA (wing-podded S.); Organ Mountains.—Sepals and petals pink, lip of the same colour, with a dash of white in the centre. A free-growing desirable species, with larger leaves than any other species. 21s.

Culture.—This family of small orchids being from the tops of trees on mountains of considerable elevation in South America, do not require a high temperature. The Mexican house, therefore, is the most suitable for them. They grow best on small blocks of cork with the bark on, without any moss; require syringing twice a-day when growing, and at that time a moist atmosphere; but as soon as the pseudo-bulbs are fully grown, syringing once a month will be sufficient, and a drier atmosphere in the house will be advantageous for them. With this treatment, which gives a season of growth and a season of rest, these pretty plants will grow and flower well.

VANILLA PLANIFOLIA (smooth-leaved V.); West Indies.—Yellowish white. 21s. The fine scent named vanilla is obtained from the seed pods of this plant. It produces its flowers from the axils of the leaves on short stems. There are often as many as seven or eight flowers on a stem, and these are succeeded, if properly fertilized, by as many pods, six or seven inches long. In their native country this office is performed by insects; but in our stoves artificial means must be used to effect it. There is a projection, something like a lid, over the stigma; this must be removed, and the pollen masses laid upon the stigma, and then the pods will shortly appear. If this is not done the blossoms will all drop off, and no seed pods will be produced. Perhaps some of our readers may wish to inquire which is the stigma and what is the pollen? We will try to describe them. In the centre of nearly all orchids there is a fleshy column, the top of which is called the stigma. Over this, hung generally by a joint, is one or more masses of a sticky, wax-like substance; this is the pollen, which, when touched, especially in the genus *Catasetum*, springs off; and if it falls upon the stigma, impregnation takes place, and the seed vessels are produced. In the case of the *Vanilla*, this cannot take place unless the lid-like covering of the stigma is removed and the pollen applied by the hand; at least that is the case in our stoves.

There are two more species of Vanilla, namely, *V. aromatica* and *V. bicolor*; but they are not much different in habit and bloom from the above-mentioned.

Culture.—To grow the Vanilla to perfection, and all the species require the same culture, it ought to be potted in a mixture of pieces of turfy peat, chopped moss, and broken potsherds, in equal parts. The pot containing the plant should be placed against a wall, and the plant fastened to it with a nail and shred of cloth. It will soon attach itself to the wall by the roots it puts forth all up the stem; and will only require the ends of each directing, so as to prevent them crowding each other. We had once a plant under our care that had the advantage of a bark-bed to root into; the roots ran among the bark surprisingly; and, in consequence, the shoots progressed in proportion, entirely covering the back wall of a house nearly 40 feet long. As soon as they reached the top, some of the shoots were trained down the rafters, where they flowered and fruited freely after being set. At Syon-house, the seat of the Duke of Northumberland, this plant is trained over the back wall, which it entirely covers with its fine large fleshy laurel-like leaves, and there it fruits plentifully. Our readers must not suppose, however, that the fruit is the only attraction; the flowers themselves are large

and handsome, and emit a sweet perfume during the night.

We have now brought our labours to a close on this section of our subject, that is, on such plants as thrive best on blocks. We have had much pleasure in giving such information as we possessed on the subject. We have kept nothing back, but have endeavoured, in plain, simple language, to make the culture quite easy to the most uninformed or new beginner, to grow these most singular, interesting plants. It only remains, now, to give the culture of such as thrive best in pots; and our next paper on orchids will commence with the third and last section of orchidaceous plants.

We had the pleasure to pay our annual visit last week to our good and estimable friend Mr. Bassett, gardener to R. S. Holford, Esq, of Weston Birt, near Tetbury, in Gloucestershire. As usual, we found the extensive collection of orchids in most excellent health. There was a degree of robust strength about them that we do not often meet with. The point of excitement is carried just to the right pitch, to produce larger and stronger pseudo-bulbs than the previous year. Below is a list of those we observed in flower, which list will both give our readers an idea of *the kinds that flower in autumn* and the extent of the collection there :—

Angræcum bilobum, white
Barkeria Skinneri, pink
Brassia brachiata, yellowish brown
Calanthe vestita, white and rose
Cattleya bicolor, green, brown, and purple
—— candida, white
—— labiata, purple and rose
—— marginata, purple and rose
—— Mossiæ, purple and rose
—— violacea, violet and white
Cypripedium barbatum, and Javanicum
Dendrobium moniliforme, rose and white
Epidendrum ciliare, white
—— crassifolium, pink
—— paniculatum, white and chocolate
—— vitellinum, scarlet
Lælia Perrinii, lilac and white
Lælia rupestris, purple and white
Lycaste Skinneri, white and crimson stripes
Maxillaria picta, yellow and brown
Miltonia Clowesiana, chocolate and brown
—— Morelliana, deep purple lip
Odontoglossum grande, yellow and brown
—— Insleayi, yellow and light brown
Oncidium leucochilum, white and brown
Vanda fusco-vioides, rusty green
Zygopetalum brachypetalum, purple lip
—— Mackayii, white, with purple stripes
—— Crinitum roseum, yellow, brown, and rose

FLORISTS' FLOWERS.

CINERARIAS.—Such as are showing bloom should now be re-potted into larger pots to encourage free growth. If they are kept in small pots the blooms will be poor and few. Encourage them by liberal treatment to produce leaves as large as cabbages, and of a deep green, healthy colour. The compost for them now should be of the richest description; good light fresh loam three parts, and two years old dung one part. If a portion of leaf mould is added it will be useful. Pot blooming plants into pots 7½ inches diameter. Plants in a younger state to succeed the first will not need potting till next month. Great care must be taken to protect them from a single degree of frost, as they are now flush of gr and very tender. Now is a good time to procure the year's seedlings, or any other good sorts that ma desirable. If postponed till spring the plants wil weak, and will not flower so fine as if had now an potted immediately.

For other florists' flowers, their treatment, protec watering, giving air, and keeping clear of insects the back numbers of THE COTTAGE GARDENER.

T. APPLEB

THE KITCHEN-GARDEN.

GLOBE ARTICHOKES should now be protected for approaching winter, by placing neatly and systematic round each stool of crowns some dry leaves, fern mulch, and covering them all over afterwards with inch or two of the surrounding soil, so as to keep close, and prevent the wind from blowing the leaves, about.

JERUSALEM ARTICHOKES should have their stems off within a few inches of the soil, and the surface sh be mulched with some kind of refuse, otherwise the in the winter months may perhaps get frozen so har to make it inconvenient for taking them up.

RED BEET may now be stored in cold sheds, or bar in narrow ridges out of doors, and thatched.

PEAS AND BEANS.—Those who have plenty of s soil may form sloping banks, and get in a sowin beans and peas at once; but if not convenient to d now, the last week in this month or the first week December will be found early enough, so as to l them just breaking through the surface of the soi the shortest day, when they may be protected with dust, &c., with very little trouble. Where a conven place, such as a shed sufficiently light, a frame, pi hothouse, or any thing of a similar kind, is at hand sowing the early peas in small pots, shallow woo troughs, 3-inch semi-circular drain-tiles, strips of 3 inches wide scooped out in the middle, or any s simple contrivance for forwarding the pea crop, where at the same time ground for cropping is not abundant, the end of January, or any time in the two weeks of February, will be early enough for sow *peas*; and *beans* may be sown in pans and placed side some kind of shelter, or under hand glasses, to them ready for transplanting.

ROUTINE WORK.—Take an early opportunity of fin earthing-up some of the most forward *cardoons*, as wel *celery*, previous to drenching rains, the winds and fr mornings which may now be expected; make all se by systematically earthing-up to prevent any b battered and broken down. *Sea-kale*, *rhubarb*, *asparagus* should be prepared in small quantities previously recommended for forcing. Sow *cucumi* and keep the young plants close to the glass, with heat applied at the top, and take care to air libera those in bearing should have the fruit kept thin, al ing at this season only a few at a time to swell of the plants will soon exhaust themselves, now that t is so little daylight.

JAMES BARNE

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

THE love of dress among the female portion of the poor has been greatly and lamentably increasing of late years; and is a fruitful source of mischief in many ways. I remember, in my childhood, the neat and comfortable dress of the female peasantry—the dark stuff or cotton gown, the milk-white apron, the warm red cloak, and the large black puckered bonnet,—all seeming to last from womanhood to age, and that gave so respectable an appearance to the rural congregation on the Lord's day. The dress of those times seemed to last for life,—it was so strong, so good, and so carefully treated, so that when once the purchase was made, little expense was needed for the future. But now things are wholly changed, and the two or three stout scarlet cloaks which still linger in the village, form a striking contrast to the tawdry, unbecoming finery that prevails now, and makes us continually regret the simple propriety of bygone days. The very children in the streets, ragged and dirty, have their long hair plaited and tied with bits of greasy faded ribbon, in imitation of their betters (a style which, I must observe, is by no means so pretty and child-like for the higher classes as the simple crop I remember in my youthful days); and their bonnets are filled up with *bunches*, as they call them, and decorated with ribbon in needless and wasteful abundance. Instead of delighting to be neat and clean, young people are only trying to be fine; and there is nothing so unpleasing to the eye, as well as distressing to the mind, as unbecoming finery in a labourer's cottage. Many shillings are thrown away or debts incurred by this love of dress; and it is to young women the root of a thousand evils.

The cheapness of all articles of clothing, especially of that which is worthless and unsuited to the lower orders, may be considered a real misfortune, because they can so easily give way to their fondness for finery. Imitation-lace, flowers, ribbons, beads, and trumpery of all descriptions are so cheap, that it is a sore temptation to the young and vain; and servants spend their wages upon their persons, instead of assisting their families, or laying their money by for time of need.

The classes immediately above the common labourer, who are, in fact, little removed from him in point of circumstances, are equally wrong,—I mean the wives and daughters. On Sundays it is scarcely possible to distinguish the wife and daughter of the workman, or the petty shopkeeper, from the gentry of the neighbourhood, except by their manner and by the *smartness* of their clothes. The sisters of a sawyer, in mourning for their mother, are as handsomely dressed in bombazine and crape, in fashionably-cut cloaks, bonnets, and parasols as any lady under similar circumstances could be; one of them is a servant out of place, and both are dependent upon their brother, and their own exertions as laundresses, for support.

I was leaving the village shop, one day, which contains everything that country customers can require, from bonnets and cotton dresses to cheese and bacon, &c., when a figure in a walking dress met me, and I was just going to accost her as a lady of fortune in the neighbourhood,—my hand was just advancing to greet her, and her name was only just not spoken,—when to my extreme surprise I discovered that the features were those of the daughter of the person who keeps the shop, and the dress and general appearance were but a close imitation of the lady for whom I had mistaken her. The unseemliness of such dress in the humble ranks of life is very striking and lamentable. It confers no respectability upon the individual, and only provokes the envy of those below them, and the disapprobation of those above. It is in vain to lament the pressure of the times when such expense is lavished upon that "which profiteth nothing;" and it is grievous to see the parents rising early and labouring late, while their daughters are displaying at church a style of dress so improper for their means and station. If this growing evil could be checked or discouraged, great good would be effected; and it might be the means of preserving many young people from guilt and disgrace.

The dress of farmers' wives and daughters is equally extravagant, and the manner in which their little children are now decked out and brought up is truly deplorable. The hard-working, simply dressed daughters of farmers of old times would be indeed confounded, if they could now rise up and visit the scenes of their past labours. They would find their clean wainscotted or white-washed parlours papered, and curtained, and carpeted; they would find the stout oak or walnut-tree tables and chairs exchanged for fashionable furniture; and, possibly, the mother of the rising generation reclining in a large easy-chair, and summoning her children from the hands of the governess, by ringing for the servant to bring them in. This is no over-drawn picture—no fanciful or exaggerated case: it has passed distinctly before me, and my own eyes have witnessed these and many similar instances of folly and improper expense.

It is scarcely possible to over-rate the evil effects of such extravagance. The sin lies at the door of the wife, and sister, and daughter, and they only are to be blamed for these transgressions; for very rarely does the father trouble himself about display in the household, except to find fault with the bills when they are sent in. Men's follies are not those of dress and furniture, generally speaking, in any rank of life; they are often negligent and regardless of such things, especially in their own homes; and it is scarcely possible to avoid seeing that in the mischief and *sin* to which I allude, the female portion of the middling and lower classes are principally concerned. Among "our villagers," among the agriculturists,—yes, and among the cottage gardeners too, I see much in this particular to regret; and I shall feel deeply rejoiced and thankful if but one of my humbler "sisters" is led to practise more sobriety in dress and domestic arrangements by glancing over these lines, and thereby not only saving many shillings and even pounds for useful and profitable purposes, attracting the admiration and respect of all right thinking persons, but obeying the command of the Apostle to clothe themselves "in modest apparel, with shamefacedness and sobriety," and to be "*adorned*" only "with good works."

Whatever the Word of God enjoins is always the *happiest* path for us, as well as the best.

MARKET-GARDENING.

ADVANTAGE should be taken of all fine days for well hoeing or hand scarifying the earth between the present *cabbage* crops, the banks of late *endive*, *lettuce*, *spinach*, &c.; and sloping dry banks should be formed for pricking-out the quantity likely to be required in spring of *cabbage*, *endive*, *Brown Cos*, and the hardy cabbage kinds of *lettuce*. In the autumn season *cauliflowers* and *brocolis* may be considerably prolonged by lifting a quantity of them, as they show their heads, and laying them in some kind of sheltered cold situations—such as open sheds, temporarily-formed shelters, turf pits, or such other places—where, in case of frost, they may be a little protected by top covering with some kind of haulm or straw, by which management they may be produced in market at a season of scarcity. Quantities of *endive* should also be stored in the same way, placed thickly together. All kinds of fruit-trees may now be planted; they should be staked at once, and the earth's surface about them be slightly mulched. All spare ground should at this season be well manured and ridge trenched, first attending to the drainage where it is required. The outside fences, ditches, and water tubs should all be put in order; and any alterations or repairs required to the roads or walks, or any new ones that may be required, should at this season be attended to, as *time*, when the change of season arrives, is too precious to be afforded for such matters. Temporary shallow frames should be placed on sloping banks, and filled within a few inches of the top with soil for wintering *cauliflower plants*, for sowing the short-top early *radish*, and transplanting the early *Horn carrots*, the half-grown *endive*

and *lettuce*, also for pricking-out a quantity of small *lettuce plants* of the last autumn's sowing. We mention these temporary frames because four boards from six to nine inches wide merely require to be nailed together for this purpose, of the same size as the forcing frames, the lights of which are to some extent at this season out of use, and may thus be turned to account. When the forcing season arrives these lights may be dispensed with; for although it may be cold weather, and too early, to plant out any of those plants protected in these temporary frames, yet they may be protected by other means until the warmer season arrives—such as straw, or reed mats, or other light materials made the same size as the lights—cheap canvass, painted, too, is good for the purpose, or asphalte; indeed, there are many ways of contriving light temporary protections, which may afterwards be turned to valuable account throughout the season; for as soon as they can be dispensed with for the foregoing purposes they will be found useful in early spring for protecting the *spring salads*, the early sown *carrots*, *turnips*, *sweet marjoram*, and *basil*; for sowing *early celery* and other seeds they are also valuable, as well as for the *early kidney dwarf beans*, and the forcing of *rhubarb* and *sea-kale*, and for growing *mushrooms* under. They may also be made available for forcing a crop of *early Ash-leaved* or other dwarf-growing early *potatoes*.

Keep the vine of the *winter cucumbers* tolerably thin, regularly stopped to the fruit that shows, and neatly trained. Do not allow the vine to carry too many fruit at once, but pinch a portion of them as soon as they show. Sow at the present time, so as to have good strong plants in readiness for the end of the year. Old seed is the best, on account of the plants growing more short jointed, and showing fruit earlier and more abundantly. To get the seed to vegetate kindly, and the plants to grow on vigorously, the pot containing the seed should be plunged to the rim in a kindly humid bottom heat of 100 degrees, and the interior top-heat of the structure should be 75 degrees, or thereabouts. Immediately the plants begin to show themselves through the soil, lift the seed pan from the plunging materials, and place it on the surface; modify the interior heat to 70 degrees by giving air systematically, keep the young plants close to the glass, and have small pots drained in readiness placed inside to warm, with some kindly earth to pot them off as soon as they can be handled, and by placing them again close to the glass, a little plunged in some kindly material, good sturdy plants will be secured. Of course they should be shifted into larger pots as they may require it. New seed does not require so much bottom heat to germinate in by many degrees. We have an objection to new seed both of the cucumber and melon, on account of the plants produced from it generally growing too luxuriant, long jointed, and not so readily or numerously showing fruit as old seed. Seed two or three years old is a very good age, although we have found no difficulty in getting seed to germinate between that age and fifteen years old, for the seed keeps many years if corked tightly in a bottle, and a piece of skin is tied over the cork. JAMES BARNES.

UNITING BEES.

I AM induced to give you an account of the management of my bees, as I observe a different effect from the union of stocks to that described by your correspondents.

I purchased a hive of bees early last spring, which threw off three swarms; the original stock being in an old worn-out hive, I determined to transfer it, and my gardener, an intelligent young man, but as great a novice as myself in bee management, succeeded in driving it into a new cottage hive in September; early in October he removed the third swarm from the cap of a hive into which they had been placed, into a new hive also, by driving about an hour after he shook them out upon a cloth, and successfully united them to the first swarm; they appeared to be in harmony in the morning, but in the course of the day the third swarm was driven out, and about a hundred bees killed; he, however, united them again in the evening, and shut them up the whole of the next day; they have not since been driven out in numbers, but each day a quantity of bees came out upon the board, and all attack one bee, which they either destroy or drive away; it is not a drone.

About the middle of October he united the original stock with the second swarm, and shut them up the next day, and none were driven out at the time, but now in both hives the same work is going on; crowds come out of the hives to destroy one bee. I shall be glad if you can account for this strange effect, or suggest any mode of preventing it. The bees are fed daily with honey and sugar. If you think fit you can insert this account in your next number. I wish to know how long I ought to continue to feed them (as I cannot ascertain their weight), and what protection I ought to give them in the winter? each hive is upon a single pedestal, covered with a milk pan, one of them has a coating of lime and sand.—M. F. G.

["The one bee" is a robber attracted by the food you are daily supplying; you have nothing to fear from this, go on to feed until each stock has a store of 20 lbs.; *feed from the top*, it will save you much trouble next season if you will unite your second and third swarms at the time of swarming.—J. H. P.]

PROFIT OF LAND.

IN your paper of the 10th of October you give an extract from Mr. Sillett's pamphlet, showing the profit made on his farm, in which the price obtained for the articles sold is so much higher than it would be here (Chester), that I think there must be some error. A calf is stated to be sold at 8s. 2d. per stone of 14 lb, or at 7d. per lb; a year-old heifer, £5; a pig at 8s. per stone, or 6¾d. per lb. Now, here we have not paid more than 6d. per lb, round, for all our meat since Christmas last, and I expect to get it much lower: as having to sell 30 fat sheep last week, I could not get more than 4d. per lb, sinking the offal; and for a fat heifer, three-year-old, which met with an accident and was obliged to be killed, I only got 3d. per lb, sinking the offal. Pigs have not sold here for some time past at more than 4d. per lb, and veal at the same price. If the other articles sold are over-estimated as the above appear to be, I fear the statement will do more harm than good by misleading your readers; I shall, therefore, feel obliged if you can explain the apparent error. I notice that Mr. Sillett's quotations are for 1847, but if prices are in his neighbourhood as low now as they are here, would it not have been better to give a statement based on present prices?—P.

[Mr. Sillett's prices were too high.—ED. C. G.]

FEEDING BEES.

A main objection to the method of forming artificial stocks adopted by the "Country Curate" would present itself to many persons in the outset—viz., the trouble of feeding them. Even when this is no consideration (as in my own case, for the toil is a pleasure to me), I think that feeding with any kind of mixture is better avoided, as, supposing any of it to be left in the hive after the winter's consumption, it would be likely, in my opinion, to become candied, or otherwise spoilt; and, consequently, would only occupy room without being useful to the bees. The "Country Curate" seems (page 403, vol. iv.) to be of the same opinion. Of course artificial food is necessary on this system, as the expense of feeding with pure honey is out of the question. Were I, however, to try the plan again (for I have tried it, and, though I commenced so late as the beginning of September, with every omen of success) I should feed for the first three or four days, during which comb building would be principally going on, with Mr. Payne's mixture—being, I think, the most acceptable to the bees of any; afterwards I should give them eight or nine pounds of pure honey to store; and then, if they required any more, feed with the mixture again. I think I am right in supposing that the food last stored would be first consumed, so that all that would be left in the hive the following spring would be unadulterated honey. Perhaps even less *honey* than the amount above specified would be sufficient. Now, I have another modification of the same plan to propose, which would obviate the trouble to those who desire it, and would be attended with little, if any, additional expense. It could only be adopted where collateral or storifying hives of the same dimensions as stock hives, and which might stand as stock hives themselves, according to Dr. Bevan's and Mr. Golding's plan, are employed. Such a hive should in an average season contain at least 30 lb of honey. It might be despoiled, at the proper time, of about half or two-thirds of

tents, and the exiled swarms destined to form new for the ensuing year, hived into the remaining store. yne's, or any other kind of hives, if storified with a this plan, might have the large hive placed on the stead of the small ones, and then be deprived and ed in the same way. Supposing 10 lb of honey to be em, they might be fed a little, either in autumn or without any very great trouble. 15 lb would be nt without feeding at all.—A Most Edified Reader.

STORING FRUIT.

HARDS now present a very different appearance to hey did a few months ago; then they were loaded ossom or fruit, looking so full of life and beauty that ld scarcely imagine a few short months would have t the change that has now taken place. Even so is e bodily life of man; a few years pass, and those who erhaps, prided themselves on youth and beauty, be- ld and decrepid—unfit for any duty except that of ng the name of their heavenly Father, by bearing ny to his "mercy and longsuffering," or by sub- with resignation to the chastisements of His All- and. Not so, however, is our spiritual life!. Old —old feelings, as "we grow in grace," are thrown and new, and young, and fresh one's arise in their However aged we may be, however pure we may ap- the sight of man, still a "new heart" must be placed us before we can arrive at that heavenly habitation, all tears are wiped from our eyes, and where the are at rest. Surely we must all long for such a place! for how few, how very few, can call this their home." Let us then pray earnestly for this new "the heart of flesh," as it is called in the Bible; and ll examine ourselves, whatever our age, whatever our may be, to see that we have put off "the old man, s corrupt; and that we have put on the new man, (after God) is created in righteousness and true s." The withered and dead-looking apple-trees have far beyond my subject; and now I must bring my ts back to the point at which I had intended to start, , the best means of keeping apples, walnuts, &c., &c., the winter.

Americans, who certainly manage to keep their hard and sound a long time, proceed in this man- They place new coarse linen on the floor of the apple nd after the apples are quite dry put them separately hey then place another piece of linen (the same size nder one) over the apples, and that, they say, com- excludes the frost. The plan I have seen answer t is this:--Buy some very cheap brown pitchers, fill uite full with apples, cut a piece of slate or tile the the mouth of the pitcher, place this well down, but ful not to touch the fruit, and then tie them down uble newspaper; by this means all air is excluded, you only open one pitcher at a time the apples are iciently long exposed to the atmosphere to be injured using. I know by experience that this plan is a ie, the only annoyance is procuring the pitchers; owever, can be bought very cheaply if a pottery s to be near.

old-fashioned way of placing apples on straw is very unless the apple is a very hard sort, it imbibes the the straw, and is completely spoiled for the dessert If I were to plant a garden with apple-trees, the only should allow in it would be ribston pippins, Kerry and margills, and perhaps a quaranden for early There is an idea that the three former are only or the table; this, I maintain, is a delusion which nce be dissipated if a tart is made (and eaten) of he margill or ribston pippin. If apples are placed es, great care must be taken that they do not touch ier; and on wet days, the gardener, or some one who care of the apple-room, should wipe them over, and any which may have become at all decayed. Pears difficult to keep; in fact, it is not possible to keep od after they are ripe. If, therefore, you have more be consumed in the house, they should be sold, or ray, before they become "ready." Walnuts must be a cold and rather damp place. The shells must be f, and the walnuts put into a jar or box; then pour sawdust over them sufficient to fill up all the crevices, and then keep them in the cellar. Filberts may also be kept in the same way, but the outside covering should not be removed from them. Some people after filling a jar or box with nuts, bury it in the earth, in order to prevent their becoming dry; this may be a good plan, but as I have not tried it I cannot recommend it. When walnuts are required for dessert they should be brushed, and then wiped with a dry cloth; for, if this is not done, the moisture that is on them stains the fingers. Grapes may be kept a long time by tying them to a line stretched across a dry room, but first be very careful to remove any that may appear mouldy. Pears, also, that are picked before they are ripe, may be hung up by their stalks in the same way. Attention to trifles is the great art in keeping fruit for a long time; in fact, "trifles light as air" constitute the happiness and misery of our lives.—A Friend.

TREE MIGNONETTE IN A WEEK.

A lady of my acquaintance, celebrated for having at all times a quantity of mignonette in pots growing as trees and otherwise, at my request, very kindly imparted to me the method which she adopts for having it the whole year in the most extraordinary luxuriance. I have followed her directions, and with the like success. As many of your fair readers may wish to possess themselves of some good specimens of this general favourite without any trouble, I will give the plan I was directed to pursue:—"At the end of October, or beginning of November (before the frost comes), select some of the most vigorous and luxuriant plants from the borders, put each plant into a five-inch pot, place for a few days in a close room, giving a good supply of water, and then place them in a window or greenhouse; those that are twelve inches high trim up as trees; if carefully managed, the leaves will not even flag, or shew any signs of having been removed." I have several plants (trees) twelve inches high, which were removed from the borders last week, looking as luxuriantly as possible, and scenting the room where they are standing most delightfully, and showing no signs whatever of having been removed. Remember to select the most luxuriant plants, and those fullest in bloom, but not so far advanced as having begun to ripen their seed.—J. H. P.

RICE BLANCMANGE.

This forms an excellent accompaniment to preserves of any kind, or to baked apples. It is made as follows:—Put one teacupful of whole rice into half a pint of cold water; when the rice cracks or begins to look white, add one pint of milk and a quarter of a pound of loaf-sugar. Boil it until the rice has absorbed the whole of the milk, stirring it frequently the whole time. Put it into a mould, and it will turn out when quite cold. If preferred hot it may be *again* made warm by being placed in the oven for a short time. It may be flavoured with lemon, cinnamon, &c., but is most wholesome without, and forms both an elegant and very economical dish at any time.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

Errors.—In some copies of No. 109 are the following errors:—Page 64, *Cilsii*, instead of *Celsii*; 65, *Meterosideros*, instead of *Metrosideros*; *Tacsonia* for *Tecoma*; and 76, *Bezentinus* for *Byzantinus*.

Analyses of Vegetable Productions (*M. D— Dinan*). — Dr. Thomson's *Chemistry of Organic Bodies—Vegetables*, and the *first* number of the volume of the *Gardeners' Chronicle* for 1848, will give you many analyses.

Chapped Hands.—"As the season is now arrived when many persons complain of rough and cracked hands, I must send you a recipe which I prepare from my own honey, and find infallible. The paste should be rubbed on the backs of the hands after they have been washed clean, but are still wet, and then let them be dried thoroughly with a hard towel. 1 pint of oil of sweet almonds, ½lb. of honey, beat them well together; ½lb. of almond powder, the yolks of 3 eggs; mix the whole well, and beat it for some time, then strain it through a cream strainer or thin cloth; a small quantity of perfume and Eau de Cologne may be added. Mine has kept from last autumn quite as good as when newly made."—Guildford.

SCRIPTURE PHRASES (*Rev. H. P. G.*).—We were annoyed and displeased by the use of the phrases at pp. 60 and 61, quite as much as any of our readers can be. We know the writer too well not to be aware that they were passed uncorrected in the haste of composition; and the Editor claims exemption from blame, because unavoidably absent at the time of insertion.

VALLOTA PURPUREA (*T. W. T.*).—This when imported, or sold by the dealers, is sometimes like a hyacinth bulb; at other times, it has the remains of strong fleshy roots. In either case you may place it in a warm part of the greenhouse, but do not pot it until fresh growth is commencing; or you may pot it at once, but keep it dry until the roots are pushing freely, and the bud is breaking. You would succeed better if you could induce your plant to bloom earlier. As it is, as soon as it has done blooming, cut down the flower-stalk, and put a little lime and charcoal over the place to prevent anything like mouldiness; and instead of a dark place as formerly, keep your plant in the warmest and lightest part of the greenhouse, supplying it with water as long as the leaves remain green. When a change is perceptible refrain from watering, and by and bye turn the pot on its broadside, exposed to the sun, or shake it out of its pot, and place the bulb on a shelf in the sun, with a very slight covering of moss or paper, just to prevent its being roasted. Repot again when growth commences.

VENTILATION (*F. W. T.*).—This will receive attention; meantime, it is always sound policy from February to October to give a little back air before the sun strikes upon the house, as the confined air of the night is thus got rid of.

HYACINTHS FOR HOUSE (*S. C.*).—"These are potted and placed in a dark cellar. Shall I water them?" No, if the soil was moderately moist. "How long shall I allow them to remain?" Until the pots are well supplied with roots, and the stems have grown an inch or two; or if you have a slight hot-bed, you might forward them for the greenhouse or window. With or without a hot-bed, a small funnel placed over the top of the bulb, made of paper, will draw up the flower-stalk. You need not keep it on longer than you like. *Your small bed in front of greenhouse*, in which geraniums are planted in summer, you could not do better than fill with early bulbs—hyacinths, tulips, jonquills, crocuses, snow-drops, &c.; or you might have some early flowering low shrubs and herbaceous plants, such as evergreen candytuft, arabis, and daisies.

MOVING LARGE APPLE-TREE (*G. E. H.*).—Your large apple is an adventurous affair, being two feet in circumference. We will make a chapter soon on the most proper mode of conducting such an operation. In the meantime, throw out a trench immediately, six feet from the hole on all sides, and let it remain out all the winter. Then, without delay, prune away all crowded weak-looking shoots, especially from the interior, with a most liberal hand; even removing limbs which look exhausted, taking care to case the large wounds over with a mixture of clay, cowdung, and lime, well kneaded, covering the whole with a piece of cloth. Thus let it remain until the beginning of February, before which period you will find an article on the subject of removal.

GREENGAGE UNFRUITFUL (*G. G.*).—We fear your greengage with the four stems is merely the apology for a tree, the offspring of a debilitated root. Your soil is most ungenial in an unimproved state, enough to account for it. We would destroy it, and plant another on a prepared station, as frequently advised in these pages. If, however, you *will* try a remedy, apply a top-dressing of nice fresh soil and decayed manure, at the same time excavating beneath the tree, and cutting away all roots at half a yard below the ground level. Your wall-trees may have had prepared soil; the others probably not so.

PIT FOR FIGS (*G. S. B.*).—Your pit will, indeed, be superior to what you term "Rivers' trellises." Your angle is too sharp; we should make it about 26°. This is as we conceive a proper subject for a north light, for we do strongly object to these sharp angles; they may be aptly termed heat traps. By a north light (as indicated in your sketch, which we return), you will reduce the height of your back wall materially, and enable the operator to carry out many of his manipulations with facility. We would plant out the figs; in so doing, however, eschew all manures. A compost of two parts mellow loam, or sound garden soil, one part half rotten leaves or weeds, and one part lime rubbish will be quite good enough, probably too good, the first two years. You must have ventilating flaps in the front and back walls, as indicated by the dots. Pray do not give up your glass; asphalte *can* never do what glass assuredly *will*. Of course, by our suggestion, you will have two lights in length. Your north light may slide, but the south one merely lift up.

OYSTER VEGETABLE (*St. Nicholas Rectory*).—Our correspondent will be obliged to any one who will send to us for her seeds of the oyster vegetable *Mertensia maritima* (formerly *Pulmonaria maritima*). It is, in plain English, the Sea-lungwort, and is a hardy herbaceous plant, native of the sea coasts of our northern counties, and of Scotland. "It is in taste and appearance (when cooked in transverse slices) exactly similar to oysters."

MILDEWED CROCUS BULBS (*A Lover of Flowers from Childhood*).—Your crocus bulbs in damp moss, and now in a dark closet, have begun to emit roots, but mildew or mouldiness is appearing. Wipe off the mildew without disturbing the roots, dust them with flowers of sulphur, and bring them out into the light and warmth of the parlour window. Other questions next week.

CHRYSALIS (*T. P. M.*).—It is a chrysalis of some moth (not a grub) which you sent us, and is of too common a form for us to tell of what species until the moth comes forth.

UNRIPE FIGS (*A Lover of Flowers from Childhood*).—"As you tell one of your correspondents that you do not know any use for the small, unripe, green figs now on the trees, you may like to have the following recipe from "The Cook's Oracle," which, barring some of the garlic and shallot, has been constantly made in our family for years. The green figs forming one of the favourite and a very foreign looking ingredient, especially if some are split in half. *Mock Indian Pickle or Piccalilli.*—To each gallon of the strongest vinegar put 4 oz. of curry powder, same of flower of mustard (these two to be rubbed together with half a pint of salad oil), 3 oz. of ginger bruised, 2 oz. of turmeric, ½ lb. (when skinned) of shallots slightly baked in a Dutch oven, 2 oz. of garlic baked the same, ½ lb. of salt, 2 drachms cayenne pepper. Put these ingredients into a stone jar, cover it with bladder wetted with the pickle, and set it on a trivet by the side of the fire for three days, shaking it up three times a-day. It will then be ready to receive gherkins, nasturtiums, sliced cucumber, sliced onions, whole small onions, unripe green figs, sprigs of cauliflower, slices of cauliflower stems, radish pods, French beans stringed, capsicums, *green peaches* (to imitate mango), or anything except red cabbage and walnut. These articles (except the capsicums) should be separately parboiled in a brine of salt and water, strong enough to bear an egg, taken out and drained, spread out, and thoroughly dried in the sun and air is best, or on a stove, or before a fire, for two days at least, then put into the pickle. It will keep several years. Small green melons are a good addition, slit in the middle sufficiently to extract the seeds with a marrow spoon; parboil and dry them like the other vegetables, and then fill them with mustard seed and two cloves of garlick. Bind the melon round with thread or fine packthread.

PRESERVING UNRIPE FIGS (*G. S.*).—"In the last week's number of THE COTTAGE GARDENER, a correspondent asks if there is any use for unripe figs. I have known them preserved and dried in the same manner as apricots, cherries, or other fruits for dessert, and in this way they are excellent."

TREE ONION.—We are obliged by the following kind offer:—"Having last year supplied many of your readers or correspondents with bulbs of this valuable but neglected variety, or species, of onion to an extent that I little anticipated, I beg to state I am now prepared to meet the demands of those who were disappointed, provided two or three postage stamps are enclosed to N. S. Hodson, Botanic Garden, Bury St. Edmunds."

FEEDING BEES (*Frank*).—"In feeding bees from the top of the hive from a pan, under a bell-glass, the condensed exhalations from the hive running down the glass and mixing with the food in the pan, would it be at all injurious to them?" [*Not at all.*] "I purchased my first swarm, a strong one, late in the season, the latter part of July, and now they do not weigh but sixteen pounds; the hive, swarm, and foot-board at first weighing about eight pounds." [*Go on to feed copiously.*] You are right with your *Verbenas*.

PLANTING (*Tirydail*).—Stuart's *Planter's Guide* will suit you. Our correspondent says that he wants to know how to make *Oxford* brawn, and that the recipe we gave at page 28 is not the way to make that; will some of our readers send us the *true* recipe. Several correspondents have asked for a plan of your polmaise heating. Can you oblige them and us.

HIMALAYAH PUMPKIN SEED.—Any one desiring seeds of this pumpkin, will receive a supply if they send *their address on a stamped envelope* to Mr. Daniel Farnge, County Gaol, Oakham, Rutland.

STORING DAHLIA ROOTS (*H. E. B.*).—Your dahlia roots, packed in silver sand and kept in a sitting-room, will do very well; but you had better examine them occasionally and remove any decaying parts. By all means change *the water in hyacinth glasses*. Do it once a week, without injuring the roots; and use rain water rather warmer than the temperature of the room in which they are growing. *Mimosa pudica* is an annual, and cannot have its life prolonged. Your plant enclosed is *Arabis alpina*, or Alpine Wall-cress. Instead of putting your *Cyclamen persicum* bulbs into sand, keep them in the mould and in the pots where they have been growing. You may obtain the bulbs you mention of any of the florists who advertise in our columns.

INSECTS (*J. S., Allendale*).—The shoots of the trees you sent to us we think are covered with the eggs of a small mite (*Acarus*), which is often found congregated in the same manner as the red granules on the shoots.

COTTAGE GARDENER'S DICTIONARY (*Ibid*).—This will contain plans for heating greenhouses, and all other practical matters connected with gardening.

LIQUID MANURE (*W. S.*).—This may be applied from your overflowing casks to your cabbages, savoys, and celery during open weather. Poured upon vacant ground and *dug in* will be beneficial, when you cannot apply it fast enough to growing crops to keep down your store. You may apply it in open weather to your *winter tares* with great advantage. You may apply mulch to fresh planted trees about next February.

NAMES OF PLANTS (*J. Watson*).—Yours is *Baueria rubioides*, a hardy greenhouse plant of easiest culture. (*Brentingly Cottage*).—We believe yours is *Campanula alliariæfolia*. (*T. T.*).—*Omphalodes verna*; from Greece and other parts of Europe.

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WEEKLY CALENDAR.

D	W D	NOVEMBER 21—27, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
21	Tu	Pres. Royal S. 1840. Fieldfare comes.	30.074—30.015	48—34	E.	—	30 a. 7	2 a. 4	5 56	17	13 57	325
22	F	St. Cecilia. Sun's declin. 20° 12′ S.	29.896—29.749	45—32	S.E.	—	32	1	6 51	18	13 42	326
23	S	St. Clement. [comes.	29.677—29.326	52—37	S.	0.36	34	0	7 54	19	13 25	327
24	Sun	26 Sun. aft. Trinity. Grey Wagtail	29.361—29.303	41—28	S.E.	—	35	III	9 6	20	13 8	328
25	M		29.582—29.356	42—27	N.W.	—	37	58	10 23	21	12 50	329
26	Tu	Michaelmas Term ends.	30.065—29.732	38—18	N.W.	—	38	57	11 40	☾	12 32	330
27	W	Anniversary of Botan. Soc. Catherine.	30.138—30.136	36—21	N.W.	—	40	56	morn.	23	12 12	331

On some day of this month in the year 1714 was born William Shenstone—deserving limited praise as a poet, but more favourably remembered as one of the first suggesters of improvements in our Landscape gardening—improvements which he illustrated at his residence, the Leasowes. Previously to his demonstration of its untruthfulness, the nation was entertained by garden designers that the useful could not be united with the beautiful; or, in other words, that the useful must give place to vulgar ideas incompatible with those agreeable suggestions so peculiarly characteristic of the garden. Shenstone entertained a different opinion, and lived long enough to prove that his opinion was correct. The Leasowes, situated between Birmingham and Stourbridge, was originally a small farm, and descended to him from his father perfectly unadorned. He was thirty-one when its management devolved upon him, and for awhile he endeavoured to escape from the unpoetical employment of Shropshire farming by living at his house with its tenants; but this partial possession involved such a conflict of tastes, that after a while he took the entire estate under his own management, and most successfully addressed himself to its embellishment. Mr. Whateley—one who paints not with words—saw it as it was finished by its founder, and thus portrays its features:—

"It is literally a grazing farm lying round the house; and a walk as unaffected and as unadorned as a common field path is conducted through several enclosures. Near the entrance into the grounds this walk changes suddenly into a dark narrow dell, filled with small trees which grow upon abrupt and broken steeps, and watered by a brook, which falls among roots and stones down a natural cascade into the hollow. The stream at first is rapid and open; it is afterwards concealed by thickets, and can be traced only by its murmurs; but it is tamer when it appears again; and gliding then between little groups of trees, loses itself at last in a piece of water just below. The end of this sequestered spot opens into a pretty landskip, which is very simple; for the parts are but few, and the objects are familiar; they are only the piece of water, some fields in an easy ascent beyond it, and the steeple of a church above them. The next scene is more solitary: it is confined within itself, a rude neglected bottom, the sides of which are overrun with bushes and fern, interspersed with several trees. A rill runs also through this little valley, arising from a wood which hangs on one of the declivities; the stream winds through the wood in a succession of cascades, down a quick descent of an hundred and fifty yards in continuance; alders and hornbeam grow in the midst of its bed; they shoot up in several stems from the same root, and the current trickles amongst them. On the banks are some considerable trees, which spread but a chequered shade, and let in, here and there, a sunbeam to play upon the water; beyond them is a slight coppice, just sufficient to screen the spot from open view, but it admits no gloom, and the space within is all an animated scene; the stream has a peculiar vivacity; and the singular appearance of the upper falls, both in the trees, and seen through the boughs, is equally romantic, beautiful, and lively. The walk having passed through this wood returns into the same valley, but into another part of it, similar in itself to the former; and yet they appear to be very different scenes, from the conduct only of the path; for in the one, it is open, in the bottom, and perfectly cleared; in the other, it is on the brow, it is shaded, and it overlooks not only the little wild below, but some corn-fields also on the opposite side, which by their cheerfulness and proximity dissipate every idea of solitude. At the extremity of the vale is a grove of large forest trees, inclining down a steep declivity; and near it are two fields, both irregular, both beautiful, but distinguished in every particular: the variety of the Leasowes is wonderful; all the enclosures are totally different; there is seldom a single circumstance in which they agree. Of these near the grove, the lower field comprehends both the sides of a deep dip; the upper is one large knole; the former is encompassed with thick wood, the latter is open—a slight hedge and a serpentine river are all its boundary. Several trees, single or in groups, are scattered over the swells of the ground; not a tree is to be seen on all the steeps of the hollow. The path creeps under a hedge round the one, and catches here and there only peeps of the country. It runs directly across the other to the highest eminence, and bursts at once upon the view. The prospect is also a source of endless variety: it is cheerful and extensive, over a fine hilly country, richly cultivated, and full of objects and inhabitants. Hales Owen, a large town, is near; and the Wrekin, at thirty miles distance, is distinctly visible in the horizon. From the knole, which has been mentioned, it is seen altogether, and the beautiful farm of the Leasowes is included in the landscape. In other spots plantations have been raised, or openings cut, on purpose to shut out or let in parts of it, at certain points of view. Just below the principal eminence, which commands the whole, is a seat, where all the striking objects being hid by a few trees, the scene is simply a range of enclosed country. This at other seats is excluded, and only the town, or the church, or the steeple without the church, appears. A village, a farm-house, or a cottage, which had been unobserved in the confusion of the general prospect, becomes principal in more contracted views; and the same object which at one place seemed exposed and solitary, is accompanied at another with a foreground of wood, or backed by a beautiful hill. The attention to every circumstance which could diversify the scene is indefatigable; but the art of the contrivance can never be perceived—the effect always seems accidental."

Such is a sketch of what Shenstone effected; and even that lover of chimney-pots, Dr. Johnson, says that to him must be allowed some praise for doing best what such multitudes are contending to do well. This praise, says the censor, was the praise of Shenstone; but, like all other modes of felicity, it was not enjoyed without its abatements. Lord Lyttleton, at Hagley, was his neighbour and his rival, whose empire, spacious and opulent, looked with disdain on the petty state that appeared behind it. For a while the inhabitants of Hagley affected to tell their acquaintance of the little fellow that was trying to make himself admired; but when by degrees the Leasowes forced itself into notice, they took care to defeat the curiosity they could not suppress, by conducting their visitants perversely to inconvenient points of view, and introducing them at the wrong end of a walk, to detect a deception. Where there is emulation there will be envy in narrow minds; but we will hope that the counter testimony is true, and that no such envy found place in the minds at Hagley. However, envied or unenvied, the Leasowes was raised to be the model of ornamental farms; and Shenstone enjoyed the pre-eminence of a mastership in picturesque taste until his death in 1763. He died at the Leasowes of a putrid fever on the 11th of February, and was buried in the churchyard of his parish, Hales Owen. Only a few of the other events of his brief career require a record here; and we must not omit to notice as among them, that in his posthumous publications, which appeared in 1764, are "Unconnected Thoughts on Landscape Gardening." This appears to have been the last evidence of that love of literature which characterized Shenstone even in infancy. He learned to read of an old dame, whom his poem of *The Schoolmistress* has delivered to posterity; and he soon received such delight from books, that he was always calling for fresh yet similar entertainment. He always expected when any of the family went to market a new book should be brought him, which, when it came, was in fondness carried to bed and laid by him. It is said, that, when his request had been neglected, his mother wrapped up a piece of wood of the same form, and thus pacified him for the night.

Meteorology of the Week.—At Chiswick, the average highest and lowest temperatures of these days, during the last twenty-three years, are 49.2° and 35.9°, respectively. The greatest heat during the time was 60°, and the lowest cold 15°. On 80 days rain occurred, and 81 days were fine.

There can be no doubt that the present is one of the worst Chrysanthemum seasons that has been known since it became a florist's flower some thirty years ago. Now, when we say that it is a bad chrysanthemum season, we do not mean that the weather has been unfavourable to the flower—far from it; but that the flowers generally never came into bloom more imperfectly or more tardily, nor in more instances were mind altogether.

The season has certainly nothing to do with this; for, after a tolerably extensive survey, we can state, positively, that out-of-door chrysanthemums never bloomed better, never were more healthy, and never were more forward.

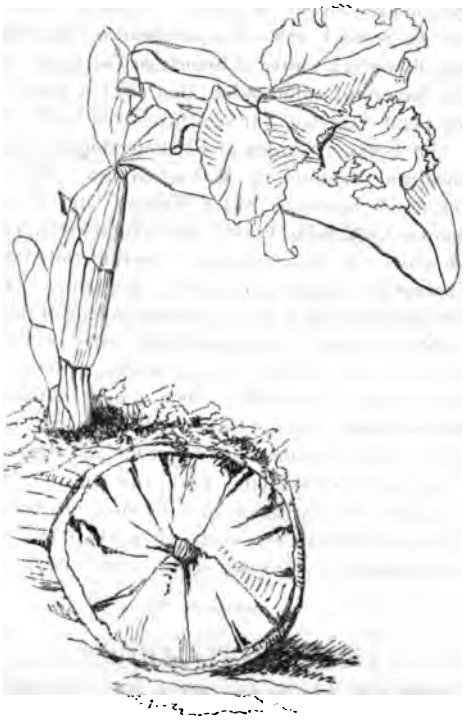
What is the reason, then, that those in pots are in all these respects quite the reverse? We said, in answer to a correspondent a week or two since, that we believed, and we still believe, that the neglect and indefensibly bad culture with which the plants are visited after they have finished blooming, is one cause of this failure. The plants in our borders do not receive such barbarous treatment, and they have not failed. "Ah! but," said

a wiseacre to us the other day, "I have always treated my plants so." Then the obvious answer is—At last, even the hardy chrysanthemums can endure it no longer.

Another cause of our show chrysanthemums proving so generally inferior to the open-border specimens may be, the tendency we notice in Horticultural Societies to have their exhibition day very early in November. This compels the exhibitor to hasten his chrysanthemums: they have to be put into moist heat—and we all know that no other florist's flower is more impatient of such forcing. This was never more unmistakeably evidenced than at the Hampshire Horticultural Show on the 11th instant. There are some most successful cultivators of the chrysanthemum in the habit of exhibiting there, and they had the greatest difficulty in bringing sufficiently forward their collections, though the chrysanthemums in the open gardens for miles round had been in full beauty for more than a week previously. Let us recommend to all Horticultural Societies never to have their November show, if chrysanthemums are an object for patronage, before the 20th of the month. No flower is easier to keep in its prime than the chrysanthemum, and none more difficult to hasten into perfection; and, be it remembered, that the object to be attained in growing this flower is not obtaining it at an unnatural season, but obtaining perfect blooms upon vigorous well-foliaged plants.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.



WHITE RUBY-LIPPED CATTLEYA (*Cattleya labiata alba*). —*Paxton's Flower Garden*, 117.—The genus *Cattleya* was named by Dr. Lindley more than twenty years now passed, in compliment to W. Cattley, Esq., of Barnet, then a celebrated grower of exotic plants; *labiata*, the specific name, has reference to the labellum, or lip, of the flower; the petals and sepals of this variety being creamy white, the name *alba* refers to that colour; the labellum is of a deep purplish rose. At present, all the curious forms known among orchids have been reduced into seven great divisions, and these are severally named after some conspicuous genus, or group, in each. Thus, beginning with *Malaxeæ*, named after Malaxis, mostly weeds, we come, in succession, to *Epidendreæ*, from Epidendrum, *Vandeæ*, after Vanda, and *Ophreæ*, called after Ophrys. In this division, we may observe, stand our own native orchids. These are followed by the fifth group, which is called after *Arethusa*, the sixth is after *Neottia*, and the last after the *Cypripedium*. In these seven divisions are included nearly 3000 species, in almost 400 genera, and all having more or less family likeness in their distinctive sections. Thus, *Cattleya* is in the section of the Epidendrums, and the nearest genus to it, or alliance, is *Lælia*,—all of them fine handsome stove orchids, so often referred to by Mr. Appleby. The appearance of this splendid variety of one of the best of the old *Cattleyas* brings a more recent introduction, *C. Mossiæ*, into such contact with *labiata*, as to render them specifically one and the same thing. Indeed, this is the case in many more instances of this favourite family. The many attempts, from year to year, to increase their number in species, are fast going on to prove the difference to be more in the words than in the appearances they exhibit. Yet so various are the aspects they assume, that there is scarcely a common animal to which some of them have not been likened, more particularly insects and reptiles; and, notwithstanding the strange forms some of them take in the forests of the tropics in both hemispheres, they have not surpassed in vagaries some of those terrestrial orchids we sometimes hear of from the settlers in New Holland. Yet, with all their strange aspects, botanists have reduced their flowers to three sepals, answering to the calyx in other plants, three petals, and the lip, or odd petal, which is, in most cases, very different from the form of a petal; with the column, which are the parts of fructification consolidated together into one body; but the lip or labellum is the part which takes the strangest forms.

Mr. Appleby's papers on orchids render any account of the culture of Cattleya from us superfluous, but we will conclude with a biographical sketch of the species and the new variety.

Cattleya labiata was introduced accidentally in 1818, by Mr. Swainson employing some of its stems, &c., for packing safely some boxes of mosses he was forwarding to Sir W. Hooker, from Brazil! Nothing more was known of its native place until the late Mr. Gardner visited the neighbourhood of Rio Janeiro a few years since; and he thus writes about its dwelling-place:—"On the edge of a precipice on the eastern side of the Pedra Bonita (a mountain fifteen miles from Rio), I first met with the beautiful *Cattleya labiata*, which, with some

difficulty, and no small risk of falling over, I managed to reach." It has since been discovered in the Caraccas and New Grenada; the specimens varying in the intensity and various combinations of their pink tints; thus, that of which we give a drawing being white all but the labellum, or lip, which is purplish pink. Another new variety, the Blotched Ruby-lipped Cattleya (*C. labiata picta*), has its sepals and petals of a lilac rosy tint, and its labellum blotched with darker but similar colouring. The Cattleyas belong to the Natural Order *Orchids* (Orchidaceæ), and to the 20—*Gynandria*, 1—*Monogynia* of Linnæus. They are all stove inhabitants.

Dr. Wallich's Lily (*Lilium Wallichianum*).—*Paxton's Flower Garden*, 121.—The name lily is said to be derived from *li*, the Celtic word for white, and referable to the common White lily. A great congregation of bulbous, tuberous, fibrous, and fleshy bundled-rooted plants are now brought together under one common title, *Lilyworts* (*Liliaceæ*); and this fine new hardy plant from Almorah, in the north of India, belongs to the section of true lilies; and the nearest alliance to it in our gardens is *Lilium longiflorum*, a native of Japan, of which species one called *Eximium* in the nursery catalogue is a variety with a more powerful odour. This noble plant, Dr. Wallich's lily, which grows from three to four feet high, is a good acquisition to our hardy lilies. In India it produces its flowers in twos or threes at the top of the stems, but in the examples hitherto bloomed under cultivation in this country (Ireland), one flower only has been so borne. A deep, rich, sandy loam, and two or three years' growth to enable the bulbs to gain their maximum strength, will no doubt reveal the true native character of the plant. The flowers are fragrant, of a creamy white colour, and eight inches long, extending from the bottom, with a narrow long tube expanding into a wide-spreading limb. Stately though this new lily really is, it is far surpassed in stature by another Indian lily, called the Gigantic lily, *Lilium giganteum*, which is upwards of twelve feet in height; but this giant must yield the palm to the Wallich lily if their flowers be compared, those of the Gigantic lily being of a dull reddish yellow colour, like some *Hemerocallis*, or Day lily; so that some of our cultivators will be somewhat disappointed with it, now that it is, at last, established amongst us, as we believe it is from what we learned at the Hackney Nursery a year or two back; but many attempts at rearing it from seeds have failed within the last dozen years.

Being now among the lilies, we may give the following anecdote about the best of all our present stock of them—Dr. Siebold's Japan ones (*Lilium speciosum* and varieties):—When these were yet unpacked from the cases in which they arrived first in Europe during 1831, the French cavalry, at the siege of Antwerp, got amongst the valuable treasure, and destroyed many fine things which remain to this day to be re-introduced. The Japan lilies, now the pride of our autumnal flowers, were among a few things preserved from the wreck of the consignment. Lastly, the "lilies of the field," so memorable from the touching allusion made to them by our Saviour in his sermon on the mount, and which have long been supposed to be the common White lilies of our gardens, are now proved to be the *Scarlet lilies* which cover the plains of Syria—the *Lilium chalcedonicum* of botanists. It has been shewn by the researches of botanical travellers, that the White lily is not a native of Palestine, or any part of Syria; but our space does not allow of our producing the full evidence which established the identity of the true "lily of the field."

Blood-red Sweet William (*Dianthus cruentus*).—*Flore des Serres*, t. 488.—It is doubtful whether this very pretty flower is a native of Siberia or Caucasus; but the more important information that it is a hardy herbaceous plant is certain. It was introduced by Dr. Fischer into the Botanic Garden of St. Petersburgh, and from thence into Belgium by M. Van Houtte. Its nearest allies are *D. barbatus* (Sweet William) and *D. Carthusianorum* (Carthusian Pink). *Leaves* light green, in a tuft, from which rise the *flower-stems*, bearing globular heads of flowers of a colour intimated by the name. They are pleasingly associated with the violet colour of the *calyx*, or outer covering of the flower-bud, hairs of the same colour, and the reddish brown *bracts*, or leafy appendages of the flower-stalks. The genus Dianthus well merits its name, derived from words implying "a divine flower;" for it includes such beautiful and fragrant species as the Sweet William, Pink, and Clove Pink, with its varieties the Carnation and Picotee. It belongs to the Natural Order *Clove-worts* (Caryophyllacæ), and the 10—*Decandria*, 2—*Digynia* of Linnæus.—B. J.

THE FRUIT-GARDEN.

Pines.—At this period, when light has undergone such a vast decrease, the heat must be also kept in due subjection. We have before explained how that, with regard to the general management of artificial climates,

light is the chief regulator of the whole affair. It matters not what be the subject, or from what clime, if it requires in-door treatment, the laws regarding light and heat, and their conjoint influences on the vegetable kingdom, are nearly identical all over the globe. Not so, however, atmospheric moisture: this, although abundantly present at one period of the year in some hot climates, is comparatively abstracted at others; as our friend Mr. Appleby has shown in his eminently practical papers on Orchidaceous plants. Now, the direct effect of this on plants which have previously, during the moist and hot period, made a rapid growth, and by consequence a most liberal development of parts, is of necessity to cause those elaborating powers which during active growth are in a dispersive state, to become more concentrated, and the production of blossom is generally the sure result.

With a fruitful condition also is induced a degree of hardihood against severe depression of temperature. The pseudo-bulb of the orchid becomes compact and solidified, and the wood of the peach, the vine, &c., becomes what the practical man terms ripened, and in such things as the pine-apple, a comparative cessation of growth takes place, and the whole plant assumes a more sturdy character.

We name this as preparatory advice connected with winter pine culture, and to point to an exceptional feature; for the pine, as to cultural matters, and the conveniences arising from its capabilities of sustaining a succession in the dessert, forms an exceptional case. There is no occasion to dry up the leaves of a pine plant as an orchid; nay, the practice would not answer. Although the pine delights in an atmosphere always tolerably well charged with atmospheric moisture, even in winter, yet that moisture should not be allowed to condense into drip.

Moreover, although it may be desirable in the case of full-grown pine plants to *compel* them to form fruit at a given period, for the sake of a succession, or a special supply, yet with *young stock*, which merely require wintering preparatory to their full stature being completed during the early summer months, the case is wholly different. Here, the object ought to be to keep the plant from sinking into that quiescent state which a long continued dryness of atmosphere is sure to produce. Under proper conditions, therefore, it appears that young pines may continue to grow, or to slightly increase in size, all the winter, provided that all the light possible is ensured them; and that, accordingly, all the enlargement which takes place is accompanied by a firmness of tissue, characterized by a deep green colour, and by a sort of metallic firmness in the foliage.

It is the custom with many persons still to winter their young stock of pines in dung beds, or pits as they are termed. Now, this we conceive to be a "penny-wise and pound-foolish" plan, inasmuch as we believe the day is nigh at hand when people will find another and superior use for such valuable materials, which are thus allowed to lie and *stew* away some sixty per cent. of their essence, leaving a residual humus, which, although a thing to promote speedy root-action in many crops, is yet a material of slight durability, inasmuch as its organic texture is broken down and destroyed in the most artistic way. However, since pines *must* be grown in dung pits, and since they can be grown well in dung pits, they must ever be taken care of; and a little advice to those who are in need of it—in fact to small gardeners—may be of service. Come we now, therefore, to hard practice in this affair.

The main business through the autumn with the dung-pit men is so to manage affairs, as to get their young stock in a firm state. To effect this a most liberal amount of ventilation is had recourse to, through the months of September and October. To sustain this free ventilation—which would only be another name for starving, unless artificial heat were imparted in some way—recourse is had to renewed linings; and, in most cases, to a renewed bottom-heat also. Where tan trees abound in country gardens people generally wait until the fall of the leaf, until they renew their bottom heats; for although we have, in broad terms, called the ordinary structures "dung pits," yet we do not wish to be inferred, that in using a mere conventional phrase that nothing but dung is in vogue. Some use a proportion of leaves—even in the linings; some are compelled to "top-up" occasionally with the mowings of lawns; and most cultivators use tan, at least as a plunging medium: that is to say, a means of securing a regular and, if possible, specific amount of bottom warmth, as near as may be, independent of the atmosphere.

Such, then, forms in general the preparatory course to winter culture; or, perhaps we had better say, winter conservation. We will now suppose such steps taken as that red holly berries denote the approach of Christmas. The bottom heat now should be as near as possible 80°, and should not be allowed to deviate five degrees either above or below this point during the winter or until the middle of February, when an advance must take place. We are now supposing the plants to be plunged to their full depth. Many persons, however, having insufficient structures, are compelled to maintain a bottom heat of 80° to 90°; but in that case the pots must be plunged half their depth.

When the structure is complete, and a sufficient amount of heat can be readily obtained, there will be no occasion to disturb any of the plants, for the less they are disturbed the better; it will suffice to add some surface tan, stirring the whole up with a pointed stake, and applying water to the tan where husky, as before observed, a free ventilation must be used on fitting occasions, especially during the forenoon of a fine day; always taking care to close the glass soon after sunset. The syringe must be entirely dispensed with until the end of January, for the plants will get sufficient atmospheric moisture from the fermenting materials.

From the end of November until the middle of January let the ordinary air of the pit range from 55° to 60°, allowing a rise of five or six degrees through sunshine. The linings will require a careful examination, and what is termed topping-up must frequently had recourse to; and about once a month the whole volume of linings will want trimming at the bottom, removing entirely any decayed materials. These should be swept away as it falls, and not suffered to lie on the linings; and when very intense cold prevails, chilling winds, spruce boughs, or any extra protection will greatly assist in keeping up an equable temperature.

We have thus dwelt much on the winter culture of dung-pit pines, believing that such puzzle the pot more than those in houses, which are generally in a more defensive state. We may now, however, say something about fruiters in houses,

It may be here observed, that where the bottom heat is very much on the decline, similar means must be taken to that before described as to removal. In nine cases out of six, the bottom heat may be renewed without disturbing the plants, which is a thing specially to be avoided with fruiting pines, for they abhor all sort of meddling which has a tendency to rupture some of the roots, recently acquired, and to damage their leaves. It is almost unnecessary to dilate on the immense benefits derivable from a permanent source of bottom heat, as the tank; such at once supersedes both the manual incident on removal and the capricious action of fermenting materials.

Now fruiting pines in houses, especially those of the black section, adapted for winter fruiting, such as

Jamaica, enjoy an amount of atmospheric moisich would be prejudicial, if not totally ruinous, .ts in dung pits. There is a double reason for ıere is and must be a more liberal amount of ıeric heat. There are greater vicissitudes occursuch structures; for, of course, the amount of ıtion from the foliage is greater, and it also lies power of the operator to permit at intervals a amount of dryness in the air; and this someecomes necessary for a few hours, especially after of dull and damp days, when, of course, all the ıs of the plant are at a minimum point, and long continued moist atmosphere would in part what we must for the moment term a vegetable lation.

ıy here be observed, that when pines in different ıf fruiting are wintering in the same house, a ot by any means unusual in these days, a com- becomes necessary. Those swelling off, or apng the ripening process, will require a liberal of atmospheric moisture; those ripening or ıg are averse to a damp air; and those merely ; fruit require an elevation of temperature, in ıat a free ventilation may be encouraged; these being necessary to what is practically termed ıetting." The last is, of course, a somewhat unnt section; at this period they are few in numl not to be relied on. It behoves the pine grower, e, to bend to the majority, such being indicated r probable usefulness and value. From now e end of January a bottom heat of from seventyıighty must be insured, and an air thermometer from sixty at night to sixty-eight in the day allowed, permitting, nay encouraging, an adıf some eight or ten degrees on sunny days or ntervals, which should be instantly taken advanif only for an hour or two.

ɜ who are deficient in atmospheric moisture, had nmediately apply some evaporating tiles on the of their hot-water pipes or flues. Let it be a to provide an almost surplus of means for this l, reserving the question as to whether they be filled, and when.

ıs advise above all things, clean glass; and O could persuade every amateur in the kingdom to much pains over his horticultural glass in at this season, as his butler does over his wine

This, to some, will seem fussy enough, but let nds and coadjutors, Messrs. Fish, Appleby, and be consulted in back numbers of THE COTTAGE ıER, and we have no fear of our opinion being in the matter. R. ERRINGTON.

THE FLOWER-GARDEN.

ns, low trees, and other plants very suitable for ; at this season in and round flower-gardens, -grounds, and homesteads, are as familiar to ırdeners in large places as Scarlet geraniums, or and Sweet Williams; and the way for transplantn and securing them afterwards from the effects winds, frosty weather, heat and drought, is as as planting cabbages to all our readers who nything about such decorative work. Therefore, ınd being thus in a great measure cleared and plant, all that remains is to sit down, count , and look over some good and well authenticated ı which a selection may be made to suit the ɔcality of the planter, and the weight of his purse. ames, however, are next to useless to all those not happen to know something of the things ıted by name only, and to those who know all hem; lists are only remembrancers; hence it is that unless time and space can be afforded to explain to the uninitiated—some peculiar fitness in the plants for particular purposes and situations — a string of long names in alphabetical order, or in no order at all, for amateurs, might just as well be copied from the catalogue of Theophrastus as from an English list; and hence, too, my own dislike to what is called, and often called for, lists of such and such plants, when no clue can be given as to their properties and uses, or fitness, for those to whom they are specially intended.

Mr. Appleby is the only writer to whom I can point, on the spur of the moment, as the best manufacturer of lists, such as, I am quite satisfied, are at all useful to amateurs—aye, and to gardeners too; and when the new mode of giving English terminations to names, and orders, and sections, and the nearest allianoe of the plant spoken of is understood and appreciated, I am equally confident that no list can go beyond his in usefulness, and, according to our present knowledge, is all that pen and ink can do—brains must do the rest when the list is before us. Of course, I do not include in this category such lists as extend to monographs, or certain families of plants such as that lately noticed by the Editor from the Messrs. Knight and Perry, the celebrated proprietors of the Exotic Nursery, Chelsea, and which monograph, on the conifers or fir tribes, is the most complete and useful one in our language, and should be read and studied by gardeners, young and old. To read a book and then lay it by, is no better in these days than whistling an old tune; we must study them by reading over and over again.

One more feature in lists, and I am through with my preface; that is, the giving under each kind all the synonymes referring to it. This is of immense advantage; and here again the conifers have the advantage of most other families. The most correct list of them extant is given this autumn in the Journal of the Horticultural Society. Nothing is so provoking as to find that one has bought the same plant three times over under three different names; and yet the thing is often unavoidable in the absence of a full number of synonymes appended to catalogue lists And half the world cannot conceive how such accumulations of names take their rise—but the explanation is very easy. Suppose four clever men now at the mines of California, as much bent on finding new plants as gold, and suppose each of them has made a small collection of specimens of the rarest plants round about, and that they are now on board the same vessel on their way back. After getting across the Isthmus of Panama, one of them goes to New York, one to Paris, another to Vienna, and the fourth to London. Now, let us suppose again that a magazine of botany is issued monthly, or at any stated period, in the four large cities, and that each of the travellers has given his collection of dried specimens to the botanist in chief for each magazine; he examines them, and compares his description with all the plants that are described in his books from that quarter, and finds that one of the dry specimens is really a new plant; it does not answer to any of the sorts formerly given out, nor to any in the same order to which it belongs from other quarters, therefore it must be new, and he gives it a new name, and gives a description of it in his magazine. This plant being new to science, and in the four collections, must, of course, go through the same process in four different parts of the world, and very likely gets four names stamped on it at once; and who can help it? Let us follow the circle, and suppose a London nurseryman has got hold of this new plant, and calls it by the name given to it in London; he has a standing order with a New York nurseryman to send him over every novelty which comes to hand: this same plant arrives under the American name, the same from Paris and Vienna, and our London friend

has one plant with four names to it; and no one can say if it is not four species of one genus till it blooms, after a few years, and proves to be just one kind of plant. By this time the four names may be familiar to every gardener in Europe and America, and no one to blame either, and nothing but the stern hand of the law can settle which of the four names will have, or should have, the preference. But here, for the convenience of the public, the botanical law is like that of the Medes and Persians, it altereth not; whichever of the four magazines published the name first has the priority of name, and the other three succumb without a murmur; and the next one which compiles a list will give the acknowledged name, and the other three names as synonymes. This we, in our ignorance, call humbugging and changing names, whereas no change at all was attempted, and we are even saved the mortification of buying this plant four times over by the very system we rail against. For the sake of charity, therefore, if for no other purpose, this part of gardening and botany wants to be explained as much as anything we have to do with, and the example I have here given is the very easiest I could think of; the four collectors might have been far asunder, and the four plants named in distant lands, and forgotten before they reached us: one of them, and the first, might have been described in China, and the book kept out of circulation after the author was killed, and all the western botanists might have named it over again, thus doubling the synonymes before the book in China came to light; yet the undeviating rule would allow the China book to be the true reference, and its name the legitimate one, and all the rest would be—*not changed names*—only unavoidable synonymes, of which we can never get rid with advantage to any one. Therefore, making out really good and respectable lists of any class of plants or seeds is not such an easy task as many of our country friends believe it to be. I have always in these pages set my face against sought-for compilations of mere lists of names, but never to this day endeavoured to show cause for so doing; but I hope I have said enough to convince our own readers that it was not from a wish to shrink from the task that any of us ever refused to furnish "a list;" and that all the lists admitted to our pages may be relied on with the greatest confidence. I shall fill this letter with a short descriptive list of nice low trees, or large shrubs, suitable for small places; and as opportunities offer shall continue them through the winter, without farther preface or explanation, save that I shall not confine myself to any one system, such as is necessarily followed in books; and shall begin with

CRATÆGUS, our own "Mays," or May-thorns, among which are some of the very nicest things which any one can wish for. With the exception of the pink thorns and the scarlet thorns, they have all white or whitish flowers; and their chief peculiarities are shown in their haws or fruit, their leaves, and in their style of growth. They are just as easily increased by budding in June or July as the rose, or as sure from grafting in March and April as the apple and pear; and they may all be worked on the common hawthorn, or upon each other, with almost equal success; indeed, some of the very weakest of them will live longer when worked on others less strong than the common hawthorn, because the stock and tree are thus more in unison with respect to constitutional habit, although the common practice is to work all of them on the freer stock. Their seeds take two years to vegetate; and the simplest way to get them from seeds, for the purpose of rearing stocks, is to gather a few handsful *now* from the nearest hedge, and to put them into a large flower-pot with an equal quantity of sand or mould, and to bury the pots in a corner of the garden till next Michaelmas, then to sow them in a bed like onions, either broad cast, or in drills six inches apart; the latter is the best plan of the two, as the surface earth can be hoed and stirred from time to time. About one inch is quite enough to bury them, either way. In three years at the farthest, most of them will be fit to graft or bud: and budding them is the surest way. Two years might be saved by purchasing a lot of seedlings,—and four if established old plants are bought in,—and now is the best time: if they are planted before next Christmas most of them can be worked or budded next June; but, after all, the cheapest and surest way, to begin at the beginning, is to buy maiden plants at once from a respectable nursery, as at that age—maiden age—they sell them far cheaper than rose-trees. After one has thus a good selection of them as I intend to enumerate, the sorts may be increased at home now that we know how to set about it. Some day, but it is far distant, their fruit will be as much in request at the dessert table as cherries are at the present day; for had it not been that they take a long time to grow from seeds we should now be dishing them up after our summer fruits are gone; and, if only to run experiments over a wider field with them, I shall mention, that I am totally at issue with every writer who has hitherto explained the best way of improving our dessert fruit. The sum total of the whole is this: procure the very best specimens that can be grown of any fruit you intend to sow the seeds from, and the chances of a better sort are in your favour. I have for the last twenty years made many curious experiments in crossing a great variety of plants—perhaps as many as any man living,—and although I have no direct proof to the contrary, I firmly believe this creed about improving fruits—*not flowers*—has been established upon a wrong basis, or from inconclusive data, and that the largest, the highest coloured, and the best flavoured peach that can be grown in England, has not the same chances in its favour to produce a better peach from its kernel that a "wildling" has. The North American farmer, who can produce from his open orchard as fine a peach as the best of us can do from our south walls and peach houses, has not yet been able to excel us in improving the breed of them with all his advantages; but, according to my creed, all these advantages, under the general practice, are just so many steps against him. But to our haws.

CRATÆGUS—The Thorn. The word is from *kratos*, strength, referring to the strength and hardness of the wood; *oxyeantha*, meaning sharp-thorned, is the specific name of "The May," or common Hawthorn: and Haw itself, is derived from *hage*, or *hæg*, a hedge. The most noticeable varieties of the common hawthorn, are the Weeping—a remarkable seedling raised by General Monkton, at Somerford Hall, not many years back; among the weeping trees here then we have the weeping thorn, Queen Mary's Thorn, or Reginæ, more appreciated from associations, than from any distinctness it can claim to. The original tree was long thought much of about Edinburgh; it stood in a garden which once belonged to the Regent Murray. When I saw it last, I witnessed the tragedy of the unfortunate Mary's escape from the Castle of Loch Leven, the same week, on the stage; and now I recollect the perplexities of poor Sandy MacPharlan. The Glastonbury Thorn is also a variety of the hawthorn; the difference being that it comes into leaf very early in the spring, and sometimes at the end of the autumn, and therefore is a desirable tree for a small garden; besides the old legends respecting it. There are also white, black, and yellow berried sorts of the common thorns; the yellow is the most common. I have often seen them in hedges, and there is one not far from here. The black fruited thorn, with a little encouragement at first, would make the best timber tree of all the thorns. There is one very elegant variety, called the fern-leaved thorn, the leaves are longer than in the species and much cut on the edges; and

:e the gold and silver varieties, but they are very ings, except just when they burst into leaf in the yet I mention them, as some might fancy them, :haps it is from bad taste that I do not like them. are many more varieties of the common thorn, re are so many better kinds, that I shall pass em, except the pink and double white, which die ı a pinkish shade, and both are very pretty, and of the best I know for budding on large trees of mmon sort; the three thus worked are most ıl about the third week in May, when they are loom at the same time; and I hope every one s a thorn-tree about his garden *will now* cut back ' the side branches *near the top*, and the young from the cut parts will make the best "stocks" ɜ to bud on next June. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

ɯs for Nosegays in Winter.—"Kindly give a plants for the greenhouse of easy care and cul- ıd cheap withal, to supply bouquets occasionally the winter months," is only one of the forms in the desires of many of our friends reach us—esiring mere lists and others short outlines of nt. In order to meet their wishes if possible, ɔ as supplementary to some other papers, I shall use a sporting phrase, *hark-away*, but *hark-back* ıto cover; and as bloom in winter is our object l not trouble ourselves always to inquire whether etable acquaintances are greenhouse citizens or ng quite delighted if we can swell out our *little* th a primrose from the brake or a violet from ge bank.

ıen, for securing the means of cheaply cutting ts in winter, I recommend the cultivating a few Dwarf Annuals, as, with the exception of the the money value involved would be next to '. There is the *Mignonette;* who does not love ıire it? *Virginian stock*, with its white and purple ɜented blossoms; *Sweet alyssum*, white, honey-; *Collomia coccinea*, red; *grandiflora*, pale yellow; *speciosa*, *erinus*, and *grandiflora*, all blue, the ompact and deeply blue; *Lobelia erinus alba*, *Collinsia grandiflora*, purple; *bicolor*, buff and *Nemophilla insignis major*, white and blue; *a*, white and black dotted; *discoidalis*, purple; *a*, large deep purple blotched; *Clarkia pulchella*, *alba*, white; &c. These—if sown in a shady place e middle of June to the middle of July, either in be thinned or on a piece of ground to be after- ransferred to pots, set in the sun in September, singly or in clumps, trained by placing twigs in through which the tiny branches may ramble, ing small stakes round the side of the pot and them together with a thread, and removing them house before touched with frost in November—w during the most of the winter, if plenty of air ı them, and a temperature of from 40° to 45° ned, with a rise of from five to ten degrees of ıe. Where there is not much time to look after ıany of them, such as the mignonette, might—ly in loamy soil—have small masses of the raised from seeds sown in the middle of July, p carefully and transferred to pots upon the spot ber, and they will, after being duly shaded for a ne, often do better than those grown in pots and ɔd in watering, thinning, &c. We have often done ɜ, Nemophillas, &c., in the same way, growing ı compact masses, and allowing others to hang in ı over the pot.

2. Some of the taller growing annuals may be used for a similar purpose, such as *Vesicaria utriculata*, sown in May, pretty rose-coloured flowers; *Chrysanthemum coronarium* or *lucidum*—not quite sure of its specific name, but has been sown for a long period as the tall Chrysanthemum, under glass in March, and then planted out in May and June,—all colours from light straw to orange yellow; usually about three feet in height, but more in good soil; and, along with single flowers, frequently possessing others so double and compact as to equal their Chinese rivals. Sow in May, or, what is better still, look over the plants transferred to the borders in August, select a few of the best, prune them back rather freely, water the plant with manure-water several times, and then lift and pot the plant any time from September to the present; for it makes fibres in such abundance that it may be moved in full bloom, and with ordinary care will flower through the winter when the Chinese chrysanthemums are all gone. *Ageratum Mexicanum*, *odoratum*, *Cœrulcum* all lilac blue, and merging considerably into each other; seeds in April, or, better still, cuttings in May, planted out in good soil in June, lifted and potted in September or even now will flower profusely all the winter, and next summer too if you choose to keep them. A number of years ago I obtained from my neighbour Mr. Bushy, of Stockwood Park, cuttings from a dwarf plant of *Mexicanum*, which has retained its character, and, what is more, blooms much earlier than the usual varieties. I believe it is now pretty common over the country. The last I shall name, because others will suggest themselves, and it is one of the best for the purpose owing to the number of fibrous roots it makes, is the *Coreopsis tinctoria* and its varieties of *atrosanguinea*, &c., now changed to *Calliopsis bicolor;* seeds sown in May or June will furnish fine plants for winter blooming; and a pretty feature it makes with its crimson and yellow flowers in a little nosegay, while a well grown plant looks extremely graceful.

3. Small Herbaceous Plants which, when kept in pots and used to it, will bloom in the house from Christmas and onwards. *Daisies* in all their varieties. *Hepaticas*—used to be *Anemone hepatica*—pink and blue, single and double. *Primula* in all its varieties of polyanthus, primrose, cowslip, and oxlip, the two first—especially when double crimson, double yellow, purple, and white—being very interesting; and in a house are free from the ravages of the birds, which in some places will scarcely allow a floret to expand. The white and purple allied genera of *Arabis*, *Draba*, and *Aubretia*. *Alyssum saxatile*, yellow; *Omphalodes verna*, blue; *Corydalis tuberosa*, purple, &c., only want dividing in the early part of summer, and kept in pots in a shady place until September, and grown in open sandy loam. To these may be added *Heartsease*, which, in such a position, will bloom the whole of the winter if the plants were raised either from seed or cuttings during summer, and many of which are delightfully fragrant. And then there are the diminutive, retiring, yet tell-tale by their perfume, *Violets*, reminding us of that chartered nobility that is never known but by its beneficence, "that does good by stealth, and blushes to find it fame," the presenting a few of which—whether from the sheltering hedge, consisting of wild blues and whites, or the larger and double kinds from the garden—ever bring the smile of pleasure into a lady's face, and all of which can be easily managed—the wild ones hunted out during the spring or autumn, and potted; better still, the single Russian blue, because it blooms earlier, divided or propagated by cuttings, or even seeds, in spring, transplanted and potted in September; superior still, the double tree violet, divided or propagated by cuttings under a hand-light in April; and, best of all, the lilac Neapolitan, propagated by divisions or cuttings in a similar manner, planted out, and potted into rich soil in September. A

few pots of either of the two last mentioned will perfume a whole house. The chief thing to be attended to with the Neapolitan is *never to allow a runner* to grow from the plants *before* or during the flowering season. Though very different in point of size, a few different-coloured single *Wallflowers* are also valuable for this purpose; plants from seeds sown in August in a sheltered place, pricked out in April and potted in September, are best for winter blooming. The double ones will not bloom well until spring.

4. BULBS.—Masses of *Winter Aconite*, *Wood Anemones*, especially the white double, *Snowdrops*, single and double, *Crocus* of all colours, may now be taken up from the border as the shoots appear above the ground; also, *Tulips*, *Narcissus*, *Jonquils*, *Dog-tooth Violets*, *Bulbocodiums*, *Hyacinths*, &c., if potted in October, placed in a dry place, and covered up with ashes, if there is a small forcing pit, may be brought into bloom about Christmas. If taken after being well rooted to the greenhouse, they must not be expected to bloom until February and March, if no other heat was given them. Those recommended to be raised out of the border will not stand anything like forcing, but must have pretty much their own way, though they will be more forward in the house than out of doors. Though not bulbs, yet in company with them in the greenhouse, may now be placed the beautiful tribe of *Cyclamens*, which, if now pushing, should be top-dressed with rich compost. *Lachenalias* and other bulbs will follow in the spring.

5. HARDY SHRUBS.—Many early blooming ones will come much earlier in the greenhouse, especially after they have been used to it for several seasons, and when after blooming they could be protected in a pit for a short time while making their wood, plunged in an open situation during summer, and placed in a shady cool place to give them a rest in the end of September. I only mention a few:—*Persian Lilacs*, hardy *Azaleas*, *Deutzia scabra*, *Weigela rosea*, hybrid *Rhododendrons*, and though last, far from least important, strong plants of Perpetual, Bourbon, and Tea *Roses*, to be kept in the airiest and warmest part of the house, not forgetting even the common China, and some of the varieties, such as *Cramoise superieure* and *Abbe Mioland*. These, if pruned rather closely in July, set in a shady place, kept cool and dryish until the buds were breaking, brought then into the sun, top-dressed with rich compost, watered with something stronger than pure water, soon have several strong shoots, and a good many buds upon them opening and to open. *Jasminum officinale* (Common white) and *Jasminum revolutum* (Yellow), if prevented flowering and pruned and treated in a similar manner, will yield their delicious blossoms during the most of the winter.

6. HALF-HARDY PLANTS, such as are generally used for bedding, many of these are valuable for winter blooming. I shall mention the most prominent, keeping the *bouquet* principle in view. Scarlet geraniums of all kinds,—*Tom Thumb* and *Punch* perhaps the best; plants to be propagated in May or June and shifted a time or two by October. A few of the fancy kinds, such as *Jehu*, *Statuiskii*, *Yatemanianum grandiflorum*, *Nosegay*, &c.; propagated in May. Also, some sweet-scented ones, as *Prince of Orange*, *Citriodora*—a sprig of either of which give a zest to a nosegay—and *Citriodora purpurea*, which, in addition to sweet scent, possesses beautifully curled and crisped foliage. *Penstemon gentianoides*, purple, with its varieties of *coccinea*, red, and *alba*, white; if sown in a hotbed in March, or propagated by cuttings in May, planted out and repotted in September, will flower for the earliest winter months. *Cuphea platycentra*, scarlet; *striligosa*, red and yellow, and others of the same genus, and particularly the first named, are constant bloomers, and when good specimens are very ornamental in winter. I have had plants several years in the same pot, and summer or winter it is much the same. Loam with a little peat, propagated in April or May. *Heliotrope*, the common, is the best for winter, and many like its scent; plants propagated by cuttings in May, potted and repotted, make nice bushy plants by the end of September; should be kept in the warmest part of the house. *Calceolarias—Rugosa*, *Caies*, yellow, and other small flowering kinds, dark or bright, are the best for winter, as less heat and light are wanted to expand them; *Amplexicaulis* is useless for this purpose; the *Kentish Hero*, however, I think will be valuable, as even now out of doors it is throwing up large strong trusses; plants propagated by cuttings in April, planted out in a border of rich light soil in June, stopped when showing flower, raised and potted in September and October, will answer best. *Salvia*—the best of the bedding ones for winter blooming is *fulgens*, red; there is also a very pretty variety with variegated leaves; plants struck in May and June, several times potted, or planted out and raised and potted in the beginning of October, will bloom for most of the winter. A salmon-coloured kind, *Involucratum*, if propagated by cuttings in April, and grown on, not stopping it after the end of July, will bloom in autumn and the beginning of winter; the gem of them all for brilliancy, *splendens*, as was shown last year, may be had in bloom the most of the winter; and *Gesneræflora*, propagated by cuttings in May or June, and successively potted, will produce abundance of its scarlet blossoms in February and March.

7. VARIOUS.—*Chrysanthemum sinense*—the varieties are endless, and will cheer up any greenhouse from November to January. Whether propagated by dividing the plant, suckers, or cuttings of the tops in spring, or laying the points of shoots in autumn, two things must be attended to—light rich soil, and stopping to make bushy, as much as you like, *before* but never *after* the first of July. *Cineraria*—the treatment of this family, as well as the former, has been previously given; all the varieties bloom well in the dark days of winter; for this purpose seed should be sown in April, and the plants grown on; or late flowering plants should be set or plunged in a shady border in May. For small plants the suckers should be taken off and potted singly in August; for large plants in six or eight inch pots, the plants should be raised, all the smaller suckers removed, the strongest left, the old soil shaken away, and repotted into good light rich compost, kept close at first and then exposed; and now they would be opening their trusses of bloom. *Chinese primroses*—these, for winter blooming, should be sown in April or May; for spring blooming August will do. They are not of much use, however, for nosegays, as the bloom will not stand after being cut. Very different is the *double Chinese Primrose*, whether white or crimson; it may be had the most of the winter season, as was shown not so long ago, by propagating it by cuttings in April, May, or June. *Tropæolum Lobbianum*—this, from its long flower-stalks, small reddish flowers, and its abundant blooming, is valuable for cutting from December to April; propagate in May or June.

8. We now arrive at our PREVIOUS LISTS for cold and general greenhouses. A limited selection of winter-flowering Heaths has been lately given:—*Epacris impressa*, *niralis*, *pungens*, &c., will now be coming into bloom. To have them early the plants should be cut down after flowering, and kept close until the fresh wood is making. *Correa speciosa* and all its brethren bloom in winter; *Cytisus*, *Coronilla glauca*, *Acacia armata*, spread out their golden blossoms during the cold weather, and especially the two first. *Azalea Indica*, and especially *alba*, when kept closer than usual after it has done blooming, will make its wood earlier, and thus get into the habit, without any forcing, of opening its buds at Christmas. *Camellias* will do the same, with the

exception of some new ones; the double white and striped red are about the cheapest and best; and young gentlemen who by means of a camellia-bud would sound their way into the good graces of the fair patronesses of gardening—when all around in the open atmosphere is bleak and dreary—are likely to know more of the value of such flowers, at such times, than their humble servant, ROBERT FISH.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

HIBISCUS.—This genus comprises a great variety of plants from various parts of the world. There are in it annuals, biennials, perennials, shrubs, and trees. The greater part of the genus is from warm climates, and it is with them that we have to do on the present occasion. Some of these are very fine objects, with large crimson, scarlet, and yellow flowers. In so large a family there are, as might be expected, various degrees of merit. We shall select a few that require the stove and are the most deserving of cultivation, arranging them for convenience alphabetically.

Hibiscus Cameronii (Mr. Cameron's H.).—This hybrid is named in honour of the late D. Cameron, Curator of the Birmingham Botanic Garden; a most worthy man, zealously devoted to the culture of plants, especially of ferns. It is a handsome variety, with pink flowers spotted with chocolate colour in the centre. It is a dwarf evergreen shrub, flowering most of the summer and autumnal months.

H. grandiflorus (Large-flowered H.); Georgia.—A very large-flowered species, requiring a moderate stove; it will live in a greenhouse, but will not flower well there. Its flowers are flesh-coloured.

H. heterophyllus (Various-leaved H.); Asia.—Flowers white and red. A species with leaves deeply divided, growing rather tall, with large handsome flowers.

H. liliiflorus (Lily-flowered); I. of Bourbon.—Scarlet flowered. A very handsome free-flowering evergreen shrub.

H. Manihot (Manihot, the native name); China.—Clear bright yellow, with dark spot in the centre. Perhaps there is no flower that captivates the spectator so much as this. He may see a large promising bud in the evening, and in the morning the large beauteous flower is fully expanded, measuring five inches across, of the most beautiful yellow imaginable, and set off by a rich dark blood coloured spot in the centre; its extraordinary beauty compensating in a great measure for its short duration and rather bad habit.

H. Rosa sinensis (Chinese Rose H.); China.—Dark red.
,, ,, *Harrisii* (bright rose).
,, ,, *Parkerii* (scarlet).
,, ,, *rubra plenus* (double red).
,, ,, *rubra flavens* (double yellow).
,, ,, *variegata plenus* (Double-variegated); scarlet.
,, ,, *bellidiflorus* (Daisy-flowered); dark red.
,, ,, *regina* (Queen-like); scarlet.

The last seven are all varieties of what is commonly called *the China Rose*. They are great favourites with the Chinese, who cultivate them largely in their fantastic gardens. In our stoves they form, with moderate management, handsome evergreen shrubs, producing their showy flowers, of various hues, from May to September.

H. Rosa Malabarica (Malabar rose); East Indies.—Scarlet. A splendid dwarf evergreen shrub, with large scarlet flowers.

H. speciosus (Showy H.); Carolina.—Bright rose. A fine species, with large light green woolly leaves and large showy flowers.

Culture.—As the plants of this handsome genus are all free growers, they require a liberal treatment with rich compost and abundance of water during the season of growth and flowering. The compost for them should consist of light turfy loam, fibrous sandy peat, and very rotten dung, two years old. It should be mixed twelve months previously to using, and be frequently turned over in dry weather to thoroughly incorporate the parts. The best season for potting is the month of March. Bring the plants into the potting-shed, prune them in freely, and clean the leaves and stems thoroughly by sponging them all over with a wet sponge, frequently washing the sponge in tepid water. Set them on one side to dry, and prepare the pots for the repotting by either using new ones or very well washed old ones. The compost should also be prepared by being brought in some time previously to dry and warm. Then take a plant, turn it out of the pot, and with a pointed stick loosen the sides and top of the ball, removing all the loose soil. The ball will then present an appearance of a bundle of fibrous roots; any that are dead, or very straggling, should be pruned off with a sharp knife. The plant is now ready for its new pot and fresh food. Let it be moderately drained, and have about one inch of fresh soil round the ball. Give a gentle watering, and place the plants in a heat of 60° by day and 55° by night. Syringe them every day with a very fine rosed syringe, and shade from bright sunshine. They will soon show the effects of this care and attention, by sending forth fresh lively shoots and dark green healthy leaves. The next point to attend to, then, will be to stop the strong shoots, to cause more shoots to be produced, so as to form a handsome compact bush. The *H. Rosa sinensis* is particularly capable of being so managed, and when well stopped and trained, will form as pretty a plant as need be desired. The finest sight of these handsome flowers we ever saw was at a place called Thornes House, the seat of Milnes Gaskell, Esq., near Wakefield, in Yorkshire. They were placed on the top of a flue next to the back wall of a pine stove. The wall had a trellis fixed against it, and the *H. Rosa sinensis*, in varieties, were slightly trained to it the whole length. There were hundreds of their gorgeous flowers in bloom, and they certainly were a fine sight. These plants, also, are very fitting objects to plant out in the central border of a stove-conservatory. In that situation they form finer shaped bushes and flower more abundantly than they can possibly do in pots with the best management.

Propagation.—Some species produce seeds abundantly, the *H. Manihot* for instance, and are easily increased by it. Sow the seed in a rich light compost, in shallow pots, in a cucumber bed, or any other place where there is a brisk heat; as soon as they come up pot them off into 2½-inch pots, in the compost described above for the established plants; replace them in the bed, shade for a few days until they make fresh roots, and then by degrees accustom them to bear the sun, giving plenty of air during the day in mild weather. Nip off the tops of each plant to cause them to send forth side shoots at a very early stage of their growth; repot them as soon as they have filled the pots with roots, and keep them in the frame for a fortnight longer, then remove them into the stove, and place them under the usual routine of the other plants in that house: with good management they will flower the same year. The *H. Rosa sinensis* is a species that sports into varieties, as the above list shows; we think it highly probable that other species with large flowers would hybridize with it, at least it is worth the trial.

By Cuttings.—This tribe of plants strike readily in heat, in sand, placed under glasses. Take the young shoots three inches long, cut off the bottom leaves, fill a pot four inches wide with drainage at the bottom and compost to within an inch of the top, fill it up with pure

white sand, place the cuttings round the edge of the pot, making them firm with a small dibble, fill up the holes with some more sand, give a gentle watering, place them under the hand-glasses, and water them occasionally when they become dry; in six weeks they will be rooted, and should then immediately be potted off into small pots, and managed the same way as is described above for seedlings.

RONDELETIA THYRSOIDEA (Thyrse-flowered Rondeletia); S. America.—This is a beautiful new plant belonging to the genus Rondeletia. It was raised by two persons at nearly the same time, namely, Mr. Bassett, gardener to R. S. Holford, Esq., and Mr. Smith, gardener to J. Anderson, Esq., of the Holme, Regent's Park. It is somewhat singular, both these gentlemen discovered their plants growing amongst a mass of orchids imported from S. America. The singularity of the foliage attracted their attention, and the plants were carefully preserved until they flowered. Mr. Smith's plant, we believe, flowered earliest. This is not the first time that handsome valuable plants have been accidentally imported into this country. Messrs. Henderson, of Pine Apple Place, above seven years ago, obtained the fine *Achimenes hirsuta* from Guatimala, amongst a mass of *Odontoglossum grande;* also, a new *Epiphyllum*, from the midst of a mass of *Cattleya Skinneri*. The above-named Mr. Smith had that beautiful and valuable-for-bedding plant, the *Cuphea platycentra*, in the same way. The fact is easily accounted for: these orchids are found in the locality where these plants grow wild, the seeds either fall amongst the orchids or are carried thither by birds, and so are brought over with the masses of orchids; and as soon as they are placed in a favourable position as to climate and moisture, the seeds germinate, and the plants are produced. All they want, then, is to be carefully drawn out, potted, and grown on till they flower. The above facts show that we ought to take care of every plant that appears amongst newly imported orchids, because, although we may be often disappointed as to the value or beauty of nine-tenths of the plants so procured, still the chances are that the tenth plant will be a good one, and repay for the trouble of growing the other nine that may or may not be worthless.

Our present subject is a plant with large handsome foliage and corymbs of flowers like the other Rondeletias. The colour of the flowers is a pale rosy lilac. They are produced abundantly in terminal and side clusters in February and March, or with a little extra heat still earlier. We saw them last December flowering finely in a warm stove at Weston Birt, under the judicious care of Mr. Bassett. The season of flowering may be prolonged much by keeping the plants in a cool greenhouse till March, and then placing them in a moderate stove heat. A vinery or peach-house at that season would suit them well. The usual compost of loam, peat, and leaf mould should be used to grow them in. They strike as readily by the same method as the family of Hibiscus described above. This plant is valuable as a winter bloomer, and is a useful addition to the flora of that dreary season. Messrs. Henderson, of Pine Apple Place, have a large stock of it. T. APPLEBY.

FLORISTS' FLOWERS.

THE fine weather we have been favoured with lately, has enabled the florist to give plenty of air and light to the tender plants under his care. By exposing them constantly to the open air they will acquire a degree of hardness and strength that will enable them to withstand better the severity of the weather that is more or less sure to visit us in the next and following months. Do not, however, let the fine weather tempt you to neglect using every precaution against a sudden change. Have everything in readiness to protect beds of bulbs from heavy rains, frost, and snow; have your coverings for plants in frames also ready for use every evening, should there be the least appearance of severe frost. See back numbers for further particulars. T. APPLEBY.

THE KITCHEN-GARDEN.

WHILST the weather continues favourable make the best use of your time in establishing good order, and attending systematically to all out-of-doors operations. Let the surface soil be kept in a loose open state amongst all kinds of crops. See that no gaps amongst the *colewort* and *cabbage crops* are allowed to remain for want of filling up with strong plants. Take care that a sufficient quantity of *cauliflower plants* are pricked in frames and in pots, or on sloping banks, &c., and that those previously pricked are kept surface-stirred, and the decayed leaves cleared away. If any of the first pricked plants are likely to become too strong, fork them up and reprick them, in order to give them a little check, but this will only be found needful where the olden time of sowing, from the middle of August to the middle of September, continues to be practised. Those who sow as we have always recommended, from the middle of September until the second week in October, need have no fear of their plants becoming too strong at this season, or of their buttoning or forming little puny flowers early in the spring, when their growth should commence. Those who have gone to the expense and trouble of planting out under hand-glasses, should leave the glasses off all night as well as during the day whilst we have mild open weather; and the slugs should be sought for and trapped as previously recommended. Our practice has always been to repair and store our hand-glasses in autumn, keeping the cauliflower plants potted on till February, trenching up and manuring the piece of ground selected for their transplantation into high sloping banks, all roughly ridged, frequently stirring the soil on frosty mornings. As we, however, generally choose the ridge cucumber ground for this purpose, our ground is already manured; but by either way of management when planting time arrives, the soil has become in good healthy condition, free from slugs, &c. The valleys between the sloping banks are made choice of for the hand-glasses, pretty close to the foot of the warmest side of the bank; the alley or walk necessary for attending to the airing, &c., being formed on the coldest side of course.

The sloping banks are at once planted, partly with *cauliflowers*, *lettuce*, and *spinach*, with a row of *early peas*, &c., on the summit; all of which crops make great progress, with no gaps or uneven stunted growths to be seen; all advance rapidly, and all come in early in the season, and the ground is again cleared at the right time for taking a splendid crop of *celery*, *summer lettuce*, *autumn endive*, &c., between which we also take a crop of the *Bishop's dwarf pea*, the American, or any other good variety of dwarf pea that will continue to yield its produce until November; and thus, by a little contrivance and good management, a large produce in succession may be obtained from a small portion of land.

After all this succession of cropping and stirring the soil that we have been describing, we trench our celery out, as required for use, into banks as we proceed, in readiness for the spring *onion crop*, for which this portion of our ground is always in excellent condition; of course this is also forked and stirred on frosty mornings, so that neither weeds nor vermin have any chance of making their appearance; and when the season for onion sowing arrives the seed of course is drilled, and charred refuse is mixed with it as manure. In this way a splendid crop of onions are always safe and sure; and when these are

harvested the land is immediately well manured, again trenched into two feet ridges, and at once planted with strong cabbage plants, one foot apart, on each side of the ridges, up and down both sides of the banks; by which means we secure plenty of pretty sized good cabbages from the middle of November until March, when the ground is again cropped with peas, beans, French beans, &c.; a row or two being transplanted and protected pretty early, and so managed that the regular autumn and winter crops of White brocolis may be in due season planted between, so that they may get established by the time the above mentioned crops are taken off, when the ground is at once forked over; and the crop of brocolis have then their full range and a favourable season for making a luxuriant growth. The constantly surface-stirring with the hand scarifier, hoe, or fork, amongst all and every successive crop is the masterpiece of good cultivation; and this is still more evident where charred materials are used as a manure, on account of the loose surface thus admitting the full benefit and influence of the atmosphere.

Sow *radishes* and *Horn carrots* now, where required, in succession; keep those already up well surface-stirred, and thinned in due season. Keep also a succession of *asparagus* placed in moderate heat, as well as *rhubarb* and *sea-kale*. Sow *cucumbers*,—keep those plants now growing, sturdy, by systematic airing; and sow a few seeds of a good early variety of *melon*.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

SCALES OF EXPENDITURE.

By the Authoress of "My Flowers," &c.

ESTIMATE 6TH.

INCOME—6s. per day; 36s. per week; about £94 per annum.

Provisions, weekly.

	£	s.	d.
Bread and flour for five persons, 24 lbs.	0	3	9
Butter, 1 lb.	0	1	0
Cheese and milk, 2d. per day	0	1	2
Tea, ¼ lb., @ 3s. 6d.	0	0	10½
Sugar, 3 lb., @ 4d.	0	1	0
Grocery, including rice, oatmeal, and condiments	0	0	10
Butcher's meat, fish, &c.—say meat 8 lb., @ 6d.	0	4	0
Vegetables, including apples, &c., occasionally for puddings	0	1	5
Beer, a firkin or 9 gallons per month, @ 5s., and porter occasionally	0	2	6
Coals, &c., (2 chaldron and 6 bushels per year, @ 48s.,) and wood, 8s. per year	0	2	2
Candles, average all the year round	0	0	5
Soap, ½ lb. per week, 3d. Starch and blue 1d.	0	0	4
Sundries, for cleaning, scouring, &c.	0	0	4
Total of household expenses..	0	19	9½
Clothes, &c.: man, 2s. 6d.; woman, 2s.; children, 1s. 6d.	0	6	0
Rent	0	4	0
Extras, including schooling for one child	0	1	6
Total expense	1	11	3½
Saving (more than 1-12th) ..	0	4	8½
Amount of income	1	16	0

The "observations" upon this estimate include the following useful calculation:—"After the rate of this estimate, the expense of each child will be 3s. per week: hence it will be seen, that if the number of children in a family be more or less than three, the mode of living may be governed by the estimates preceding or following, in an inverse ratio. Thus, with this income, if there be only *two* children instead of three, the family may live after the rate of the Seventh Estimate; if there be only *one* child instead of three, they may live after the rate of the Eighth Estimate; and if there be only the man and his wife, they may live by the mode prescribed in the Ninth Estimate,—or, they may live, if they please, by this Estimate, and save an additional 3s. per week for each child less than the three. On the contrary, if their be *four* children instead of three, they will require 3s. per week more for their support, or they must live after the rate of the Fifth Estimate; if they have *five* children, then the Fourth Estimate must be their guide; if they have *six* children they must live according to the Third Estimate; and so on. Thus, without material error, *this*, and *all the other estimates* may be adapted to *many different modes of living*, such as the varying circumstances may warrant, and according as the number of children may be more or less than the number given."

If steady, resolute attention be paid to these rules, how many difficulties might be prevented and overcome. How many things we now think necessary, and even essential, might be very comfortably left out altogether in our list of weekly items, without diminishing in the least our health, happiness, or respectability. I have never forgotten the remark made by a lady,—young, handsome, and rich: "I never ask myself what I *want*, but what I can *do without*." From one who seemed so little to need the practice of self-denial, the observation came with extraordinary point and power; and it has been of so much use to myself, for many years, that I confidently offer it to the consideration of "my sisters," and request them to adopt the salutary system, for they will unavoidably benefit by it.

We have our little weaknesses and extravagancies as well as our fathers, and husbands, and brothers. We must not be clear-sighted to their faults and blind to our own; for although ours do not take the same bulky, expensive form that theirs may do, yet have we not often fancied a dress looked shabby, or a bonnet faded, or a cloak old-fashioned, when a little neat-handedness and skill might have made each article look almost like new, and saved many shillings, if not pounds, at the mercer's and milliner's? Do we not see children dressed-up to a height that surpasses folly, and becomes sin?—children whose parents we know are poor, and who are fostering a yet undeveloped passion in young minds, as well as doing that which is not lawful and right to do. Do we not hear some of our sisterhood reject a suitable house, because it is situated in an unfashionable street, where their friends would not like to be seen, and would therefore neglect them? It has been my lot, more than once, to hear such a reason assigned, when the income was painfully limited; and in one case the objection was raised by a lady whose excellence of character and religious mindedness might have led us to expect a far different feeling on the subject.

Now, all these fancies and prejudices display weakness, and cause extravagance, and have a sensible effect upon small incomes, and really strenuous efforts in other things. If we give ten or twenty pounds a year more for a house than we really ought to give, we shall never make up the deficiency by all the savings in bread, or candles, or meat, that we can possibly effect. We may make ourselves unnecessarily very uncomfortable, and perhaps stint our children or ourselves in that which is proper for health, but without at all replacing the sum we have *unlawfully* expended. So it is with dress, and with everything in which

we suffer ourselves to exceed the bounds of what our means afford.

I know, by my own experience, how embarrassing, as well as wrong, it is, to buy a new dress or bonnet, if it is not really required; and how often have I, the next morning, nay, the next minute, wished from my heart that it was again in the shop—besides not really needing to wear it until the *fashion* had changed, and something still prettier would have been really useful, and at the same time lawfully bought!

We may carry out a great principle upon a very small scale. However trifling is the work given us to do, we may perform it "as unto God," and thus in the humblest walk, and with the most limited opportunities, we may be employing our thoughts and faculties in His service as diligently, and as acceptably, as if we had hundreds to distribute, or thousands to regulate and employ.

ASPECT FOR BEES.

YOUR correspondent, the "Country Curate," in noticing my former communication (26th Sept.), has somewhat misunderstood me. In speaking of the winter management of bees, it was not my intention to propose any removal of the hives. I am convinced they are better standing all the year in one and the same position, and with the bees always at liberty. The only real enemy is the sun, to protect them from whose rays in winter all that is needed, are Mr. Taylor's screens. There ought to be a separate screen to each stock. If this faces the south, its screen must be so fixed as to intercept the sun's rays, falling at this season from the western side. My screens are rather more than 2 feet square. They cannot well be too large; but I see no utility in making them to slide, as mentioned by Mr. Payne. When bees are moved from their summer stands, so much recommended by Nutt, confinement becomes needful, or one half of the bees would be lost, for they always fly to their accustomed spot, where, not finding their hive, they perish. Of all practices, I consider the shutting up of bees the worst; in which doctrine I am stoutly supported by one of our very best apiarian authorities—Jonas de Gelein. The effects of confinement I have always found to be more or less of dysentery, and great weakness to the bees. I do not mean to say that it always is fatal; but the examples of Dr. Dunbar and Dr. Bevan, who each interred a hive, do not prove that these bees would not have passed the winter equally well, or better, on their usual summer stand; and as neither of these gentlemen ever repeated the experiment, we may conclude they did not think it worth while. As a caution to such of your readers as might be led astray by the statement doubtingly quoted (page 339) by your correspondent from the *Hereford Times*, I have taken the trouble to investigate its foundation, and find it can be traced no where, or to no one. As I suspected, it seems to be a mere fiction.

I am glad to see that our friend, Mr. Payne, has taken up my recommendation as to a fair trial of a permanent northern aspect for bees. If this succeeds, there is an end of any further controversy about winter moving, screening, or burying. Since my last communication I have endeavoured to learn what is known in this respect, on which we are very much in the dark. It is not a little singular that no individual has yet told me the experiment has been tried and failed. Very few have even thought of it. Some of my friends say an eastern aspect is not desirable, as the bees are tempted from home too early, and become disabled from chill. Others object to the west, as inducing them to leave the hive so late in the evening that they are benighted, and fall a sacrifice to enemies. Again, the summer south exposure is strongly deprecated by other parties, and I can testify to its ill effects where care is not taken in properly shading—often a troublesome affair. We need say nothing farther as to the baneful effects of the sun's rays in winter; the cause of more destruction to bees than all other casualties put together. We are thus led to the consideration of the remaining point of the compass—the north; possessing, I verily believe, a greater number of requisites as a desirable permanent aspect for bees than any of the others; provided due security is taken against damp, or undue exposure of any kind, especially on clay soils. To the instance I mentioned in my last letter of the successful working of a stock placed to the north, I am now enabled to add the experience (reported to me at second hand) of a scientific gentleman, in a southern country, who has tried the system with a good many hives, and who is so convinced of its superiority that he has desired his gardener never to place any more bees otherwise than against a north wall. I have heard the rumour, mentioned by Mr. Payne, as to a similar practice amongst the Dutch apiarians, and in some parts of Switzerland. As to fears about cold, expressed by some old-fashioned practitioner, I believe them to be entirely chimerical, with proper outer protection to the hives. The truth is, by the thermometer it will be found that in a healthy stock of bees the internal temperature (barring the sun's influence) will not vary much, if at all, whether the aspect be north or south. So that the combs are uninjured by actual frost, the lower the degree of temperature the better, and the less will the bees consume or require of food, with proportionate good health. The truth of this theory is confirmed by your correspondent, S. J. R., in your last number (page 89), which came to my hand whilst writing the preceding. He says, "in the shade one pound of honey will last as long as ten in the sun." I confess for my own part I think the mere saving of food the least important consideration, and care little whether the bees consume three or six pounds of honey, so that they are but healthy.

As a collateral branch of this subject I may mention a corroboration of Gelien's remark, when he says, "it is a mistake to suppose that bees exposed to the sun produce the earliest swarms. I have often experienced the reverse." A friend of my own has been noted for having earlier swarms than his neighbours—often in the beginning of May, and more than once in April. I have never seen his apiary, but curiosity has recently led me to make inquiry into its position. To my surprise, I have learnt that my friend's bees rarely, if ever, see or feel the sun at any season, being so situated among buildings, trees, &c., as to be entirely overshadowed.

I feel I am trespassing on your pages, but I wish to add a word more. Mr. Taylor has instructed us in a new mode of making bee food, or, as he expresses it (*Bee-keeper's Manual*, 4th edition, page 155), "converting crystallizable into uncrystallizable sugar." I found my bees appropriated it greedily. To ascertain more fully the properties of food thus prepared, I allowed a quantity of it to stand in a jar, exposed to the influence of damp (though covered from the rain), in the open air, for several weeks, till, in short, the whole became dissolved. This was in the spring. It has since remained in a dry closet in the same liquid state, with no tendency again to crystallize. To all appearance it might be taken for pure honey, which it nearly resembles in colour, consistence, and almost in flavour. Those who prefer liquid food, may therefore always be provided with what I am satisfied is the best substitute for honey that has been thought of, and at a cost not exceeding that of refined sugar. I apprehend it will keep any length of time, so chymically changed as never again to assume any kind of solid form.

AN OLD BEE-MASTER.

NATIVE WILD FLOWERS.

NOVEMBER.

IT is a pleasing task which devolves upon me of contributing a monthly wreath of Wild flowers to the columns of your active missionary of industry, THE COTTAGE GARDENER. It seems of special importance that the cottager, while receiving instructions for the management of his domestic Eden, should have his attention likewise directed occasionally to that wider field of observation—the garden of nature, which, in the words of Cowper, is "free to all men—universal prize!" Here he may contemplate the vegetable creation in all its native grandeur and loveliness, fresh from the creative hand of the Almighty; and his tastes shall be elevated thereby, his conceptions of universal beauty expanded, and his general happiness increased by the greater facilities thus afforded him for the contemplation and enjoyment of the beautiful. Ornamental gardening owes its existence to man's love of nature; and under all sorts of circumstances we observe manifestations of this love; even the toiling artisan, buried in the smoke and dust of the city, has his few pining plants on the window-

sill to cheer his heart,—they "serve him with a hint that nature lives," and bring to his recollection the green fields, the flowery woods, and the gay meadows, to which he has long been a stranger. But to the cottager our native Flora is of interest in another point of view, and deserves his careful attention. The wild plants of our land are in many cases important for their economical uses, and are otherwise interesting to the cultivator. In these papers I have endeavoured to draw seasonable attention chiefly to those native plants which may be turned to profitable account in supplying food for man and the lower animals, or other purposes; and although in some instances the uses to which I have alluded may not prove really beneficial to many of your readers, yet, according to no meaner authority than Lord Brougham, it is a gratification to extend our inquiries and discover what is useful to man, even though we have no chance ourselves of ever benefiting by the information. To no class of readers does it seem more advisable to address a series of papers on economical native botany than to the readers of THE COTTAGE GARDENER: no class is more likely to aid in the development of this source of indigenous wealth.

At the present cheerless season of the year, when there are so few wild flowers to invite the botanical wanderer to the fields, it may be excusable if I for once depart from my usual rule, and devote the present paper to a family of plants which, although not conspicuous for their economical uses, are nevertheless exceedingly interesting to all cultivators of ornamental gardening: I mean the Ferns.

During the present month many of these plants are in great beauty, and are, in fact, along with the mosses (to which we may by-and-bye direct attention), the only objects of interest which reward the collector at this ungenial season. It would be out of place for me here to enter upon detailed technical descriptions of the British Ferns, seeing that so many excellent manuals (as those of Moore, Newman, and Francis) are before the public;—I shall briefly enumerate the various species, only allowing my remarks expansion when this seems to be called for by the peculiar interest of the plant under consideration.

Adiantum Capillus-veneris (Maiden-hair).—This is one of the loveliest and one of the rarest of our native ferns—the only British representative of a genus whose delicate species seem ill adapted to brave the rigours of the north, and are more frequently found enjoying the genial shades of tropical lands. The few habitats known for this plant are chiefly in warm exposures, and especially near the sea; it generally grows from the sides of upright dripping rocks and caves; and, in accordance with its predilection for the south, Hooker has recorded it as being very abundant in the south of Europe, where he has seen it lining the inside of wells, as it does the basin of the fountain at Vaucluse, with a tapestry of the tenderest green.

Allosorus crispus, the Rock Brake, or, as Southey aptly dubs it, the "Mountain Parsley,"—not indeed from its possessing any of the good qualities of its culinary prototype, but from the beautiful crisped fronds which it exhibits. The Allosorus is often abundant in mountain districts, frequently covering the *debris* of the hill side with a refreshing verdure.

Asplenium Adiantum-nigrum (Black Spleenwort).—Common on rocks and walls; often cultivated; sometimes the fronds are forked.

A. lanceolatum (Green Lanceolate Spleenwort).—A rare and beautiful fern.

A. marinum (Sea Spleenwort).—The shining fronds of this species ornament the perpendicular cliffs of the seacoast, a habitat seldom chosen by ferns, but which seems peculiarly suitable for both the present plant and the Scolopendrium.

A. Ruta-muraria (the Wall Rue)—so named in allusion to the nature of its favourite places of abode.—Small and inconspicuous, like the two following.

A. alternifolium (Alternate-leaved Spleenwort).—Esteemed by cultivators as one of our very rarest ferns.

A. septentrionale (Forked Spleenwort).—Not so rare as the preceding, but a local plant. It occurs in Wales, Westmoreland, Perthshire, and grows in considerable abundance on the rocks at Arthur's Seat, Edinburgh.

A. Trichomanes (the Common Spleenwort) is indeed the commonest species of the genus, but a beautiful plant, although when transferred to the flower-pot it does not in all cases long retain its native luxuriance and beauty.

A. viride (the Green Spleenwort) resembles the preceding, but is a neater plant, and a much rarer one, being confined to mountainous districts. It may readily be distinguished by its green rachis, that of the Trichomanes being black.

(To be continued.)

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

LACHENALIA TRICOLOR (*A Subscriber*).—It will do admirably in a window. See what is said of it in the third volume. The pretty tubular flowers are produced in abundance at the end of short flower-stalks from nine to fifteen inches in length. Sandy loam, with an equal portion of peat-earth, or very reduced leaf-mould, suits it well; give little water until it is growing freely. It forces well; and by keeping it dry when not growing, it may be brought into bloom at almost any time. For your window do not hurry it, as it will bloom the finer the farther the sun gets from the dark days.

VERONICA SPECIOSA AND PITTOSPORUM UNDULATUM (*J. W.*).—"Can these be wintered in a cool greenhouse?" Yes. "Are there any other varieties of either plant that may be so wintered?" *Yes—Veronica decussata, labiata, parviflora,* and *perfoliata;* but we neither praise them nor *speciosa* greatly, though the foliage of the latter is pretty. *Pittosporum tobira* is hardier than *undulatum,* and its white flowers are equally fragrant. There are, also, *revolutum, tomentosum* and *fulvum,* all yellow, and *coriaceum,* blue, which is rather more tender. Both genera like loam and peat; and cuttings of young wood, getting firm, strike freely in May, when inserted in sand and covered with a bell-glass

CHRYSANTHEMUMS (*W. W.*).—These with lanky stems you wish to make bushy. After striking and potting them in spring, pinch the tops off them repeatedly, which will make them bushy; but do not pinch after July.

PROPAGATING CAMELLIAS (*M. G.*).—Take ripened young shoots, cut them into what lengths you please, but every bud will make a cutting, severing them from each other between the joints, slice off a little of the wood on the side opposite the bud—each cutting will thus consist of the bud, its leaf, and a piece of wood above and more below the bud—insert these buds into sand, placed above sandy peat, and place in a hotbed with a hand-glass over them. If put in in autumn, many will be struck before spring. Without bottom-heat, they must be kept in a shady place in the greenhouse, and get a lift on with bottom-heat in the spring. Larger cuttings must be cut across at a joint in the usual way. Grafting is best done in spring, having the assistance of a moist genial hotbed.

FUCHSIA (*G. F.*).—As your plants are in nine and twelve-inch pots, unless you wish them very large, we would advise shaking the soil from the roots, and repotting in fresh soil, trimming the roots a little, just after the tops begin to break, and using the same sized pots.

AZALEAS (*Ibid*).—"Plants 2 ft. 6 in. high, shifted into 12 and 14-inch pots in March, shall I shift them again in March, or allow them to bloom in their present pots?" Allow them to bloom; do not touch the roots until then; and, unless very much matted at the roots, we would, after flowering, merely top-dress, and let them stand another season.

CYCLAMEN SEEDLINGS (*Bath*).—These have been very much shaken in the box in which they were sown, and you think injured. You may either pot them or allow them to remain, with a little fresh soil strewed among them, until they begin to grow. In either case, give little or no water until fresh growth has commenced; but see that the tubers are not so dry as to shrivel.

CLIMBING SHRUBS, &c. (*O. F.*).—We will see what can be done so far as we can understand you.

MAGNOLIA GRANDIFLORA (*J. B.*).—To prevent the young wood of this growing against a rustic fence from being cut by the frost, place stout rods against it a little longer than the top leaves, and when quite dry thatch it with long dry straw, after the manner of cottage bee hives; or tie the thick ends of the straw in little bundles, and after packing three inches thick of small broken straw or ferns among the leaves place the tied straw astride the whole; the tops of the rods will hold this, and a packthread tied round the middle of the thatch will keep all right. Your *dark Pelargonium,* like Jtolinskii, must be *Belle d'Afric* or *Afrique,* and the other *Yetmeniana grandiflora* or one of its seedlings; but to be quite sure we ought to have seen a fresh flower of each. *Punch* is scarlet, and no mistake.

BURYING BEES (*B. B.*).—1. The ropes of straw are simply wound round the hive, beginning at the bottom, enclosing the entrance of course, and gradually ascending to the top. The earth being thrown into the pit as the hive is in process of binding, it of course keeps each straw-band in its place. The hive thus encased, had best be surmounted by some old pan or pail, or a few old slates, previous to its complete interment. 2. It is difficult to say whether the tube is *necessary;* presuming that it is *not,* I have this day (November 8) buried a hive which has no communication whatever with the external air. Still, as this is interred

in a peculiar way, although it lacks a tube, it is, methinks, not the less advisable to apply one to a *straw-covered* hive interred in the manner recommended by me before. 3. The tube should, I think, be inserted at the *entrance*, and proceed straight up the sides of the hive, the straw *being wound round it* part of the way up (i. e., the tube is to run between the straw binding and the hive), its shape being something of this shape. S. The hive alluded to above, was buried in the following manner:—A hole having been dug, 3 feet deep and 4 feet square, in a gravelly soil, was paved with a shovelful or two of large stones, upon which a piece of old board was placed. The hive (weighing 11½ lbs. of *contents*), with its entrance open to its full width, was now (not bound with straw or anything else) lowered into the pit upon its usual board, it being made to rest upon the piece of wood already adjusted on the stones. A quantity of full-sized slates were next arranged all round the hive, sloping outward from its roof (against which they lean), one overlapping the other in such a manner that all moisture which falls from above must glide away from the hive. The earth having then been thrown in half-way up the hive upon the slates, a milk-pan (their usual roof in summer) was placed bottom upwards over the hive; this done, the pit was finally filled up, and a mound raised over it. By this plan of interment a vacant space all round the hive is secured, which it is hoped will answer all the necessary purpose of hive ventilation as effectually as need a tube communicating with the open air above.—A COUNTRY CURATE.

ERROR AT PAGE 85.—"In the hurry of writing, or printing, the name of the author, Dr. Steudel, is not spelled right, neither is the title of his work rightly given. It should run thus: *Steudel's Nomenclator Botanicus*. The work is in two volumes, and twice arranged alphabetically. The first giving the genera and species, with all their synonymes; and the second the synonymes themselves in the order of the alphabet, referring them to the true names. The work was only published a few years back. I looked over it for some new names, in the library of the Horticultural Society, in Regent-street; and I thought it the very best catalogue I had ever seen or heard of before. I do not know the price or the publisher; but any of the foreign booksellers in London could find it out.—D. BEATON."

BRUNSVIGIA (*J. D.*).—Yes, you are right; but we were asked what to do *now* with a Brunsvigia that was growing out of doors all the summer, and knowing the confusion of that part of the family, we took it to be *Ammocharis*, and advised accordingly. Of course *all* Brunsvigias grow in winter and rest in summer, as you would have seen in former pages.

FIG JUST TRANSPLANTED (*W. H. G.*).—Pray cover your fig preparatory to hard weather, and do not prune until next April. As soon as its shoots begin to bud, notice which are most likely to produce side shoots to furnish the space allotted, and prune accordingly. You will remember we advise the tying-down system, as practised for pears, &c.; and that in such an event the leaders must be at least twelve inches apart. If your strong shoots are much nearer, you will have to cut down several for successive shoots; it may be alternate ones, if the distance be suitable. We should not fear to throw the main leaders fifteen inches apart, if tying down and stopping were resorted to. Above all, take care to avoid grossness.

ORCHARD (*J. L., Banbury*).—Do you not fear that the horse will bark your orchard trees? Would it not be well to employ the land between the apple-trees in growing root crops? You might lay down your extra land in grass for the horse. The cow, however, may be trusted in the orchard, perhaps, if under grass; but much depends on the size of the apple-trees, and their position. We should, indeed, hope to accomplish your objects in the main, but you will have to buy much of marl. Your soil appears pretty good, and deep enough, but may, perhaps, require a little draining. We have heard it affirmed that a good coat of cinder ashes will destroy moss, but we never proved it. Ashes are notorious for encouraging white clover, and we should always use them to mix with other top-dressings for grass land. We conceive that white clover, highly encouraged, will, of itself, extirpate the moss by suffocation. Your mode of setting forth the strata of your soil is a good idea. We will shortly offer a specimen adapted to querists, in an improved form, as regards fruit-tree and vegetable culture.

LILLIUM JAPONICUM (*Brentingly Cottage*).—Are you sure your plant is Lilium japonicum? if so, it is quite hardy if you plant the bulbs six inches deep in a peat border, in which it will do better than in loam; but many are miscalled *L. japonicum*. At any rate, as soon as the leaves fade, cut down the stems, and put the pot in some dry place till March, and by that time you will see it sprouting.

NEGLECTED IVY (*S.*).—You must cut in the breast-wood—the "overhanging tendrils"—of your ivy, and that very severely too, otherwise some stormy night it will all come down, and, perhaps, some of your house with it. About the end of April is the best time to cut it; and in six weeks or two months the bare old wood will be clothed again as green as you please. But losing all one's overhanging tendrils at one sweep is more than you can bear; therefore cut out every other branch at first, and next season finish them. You might leave a few of the *bottom* ones for years to come, by way of consolation.

CELERY CANKERING (*Ibid.*).—We should certainly try the black sandy soil you name for the trenches. It is difficult to say what is the cause of your celery cankering, as we do not know the soil or situation. Celery is most liable to canker in an ill-drained soil.

RED BUG ON CANARIES (*J. S., Kingston*).—A very good authority writes to us thus:—"In answer to your inquiry relative to the red bug in breeding cages, &c., I beg to state that canaries and other birds are very subject to these pests, especially during breeding time, which irritate them so much that they rarely are able to sit sufficiently close to hatch the eggs. The only way to rid them, is to plunge the cages into scalding water, and thus destroy brood and eggs; the birds will pick them out from their own feathers. If the cages are well cleansed afterwards with soap and water, the birds will do very well. Breeders are very particular in seeing to this before the birds are put together, and care must be taken that the moss and hair is perfectly clean and free before given to the birds, which is best done by scalding that and drying it after."

CAMPANULA CARPATICA (*Elise*).—We have said erroneously, at page 92, that this is sown one year and flowers the next. If sown in the spring it flowers the same year.

PINE APPLE (*A Subscriber from the Beginning*).—You will find what you require, we think, in Mr. Errington's papers. If you require a monthly epitome of Pine culture, buy *The Gardener's Almanack* for 1851, which is published this day by the Stationers' Company.

WORK ON ENGLISH BOTANY (*W. Yates*).—Without being able to say that it is "the best and cheapest," yet we can recommend to you *Macgillivray's* edition of *Withering's Arrangement of British Plants*. It is a pocket volume. Mr. Sowerby's work is very high priced.

RABBIT TRESPASSING (*W. Lambton*).—If your neighbour's rabbit comes into your garden through a fence, which he is bound to keep in repair, and after you have given him notice, you might recover in the County Court for the damage done. But we think that more neighbourly modes of preventing the trespass and injury might be adopted.

CAPE BULBS (*A Constant Subscriber*).—All the Cape bulbs above the size of a pigeon's egg are of the lily tribe, and will require to be planted in good loam, with one-third sand, in pots, and the bulbs buried, except just the neck, and to get no water till they make leaves two inches long; but first of all try the bottoms of them and the dry coating about the neck, to look for white bugs, which often accompany them, and which will breed fast if not at once destroyed. Those in the dry hard brown envelopes belong to the *Irids*, such as *Gladiolus*, *Ixia*, &c.; clear away all the coatings, and pot the bulbs in loam and one-half peat, with a little sand. Any smaller than crocus roots must have nothing but peat and sand, and no water till they show leaves. They are greenhouse plants, all of them.

TO PRESERVE UNRIPE FIGS.—I beg to forward you the following receipt, which I can strongly recommend:—Take the figs and cut off the end of the stem, then run a silver skewer through them; put them immediately into salt and water, in which let them remain two hours: then throw them into a jar or skillet, which place over a stove to simmer until tender; strain them quite dry (this process being to extract the milky juice which exists in them). The figs being drained of the salt and water put them into as much rich syrup as will cover them, allowing for shrinking; then throw them into the jar or skillet with some ginger, and let them simmer until they become as soft as a preserve should be. They harden after boiling and become like citron.—A MODERN HOUSEWIFE.

TRELLISING (*M. B. R.*).—What is called galvanized iron trellising, painted of the colour of the house front, is best, though not the cheapest at first. Iron trellis will not attract lightning to your house; but if your house was struck by the lightning, it would help to carry it away down to the earth, like a lightning conductor.

ABUTILON STRIATUM (*W. D. Paine*).—This bears upon the shoots of young wood, and should not be much pruned in autumn or winter. Your questions relative to the "five pound greenhouse" will be answered next week, with more particulars and illustrations.

TULIP TREE (*E. B.*).—This is the *Liriodendron tulipifera*, and is of the Linnæan class and order *Polyandria Polygynia*. Its flowers are dull yellow and red. *Winter spinach* should be thinned to six inches apart in the row.

OLD TAN (*T. Evans*).—This if well-decayed and soaked with ammoniacal liquor from the gas-works, will make an excellent manure for your kitchen garden.

PIGS (*J. B. H.*).—A pig usually attains its full growth at eighteen months old, which is a good age at which to convert it into bacon. For particulars as to food for fatting, we refer you to page 358 of our last volume. In large animals, for every 20 lbs. they weigh when alive you will get about 14 lbs. of pork; but in smaller pigs only about 12 lbs.

LIME FOR POTATOES (*Clericus*).—We have planted all our potatoes. Slake your lime with water before you spread it over the ground, and apply it just previously to digging the ground for planting.

BEER ALWAYS THICK (*J. Wharfe*).—You tap it too soon; let it remain undisturbed until it has worked itself fine.

POTATOES IN RICH GROUND (*G. F.*).—Plant your potatoes at once, without any addition. Use whole sets; plant six inches deep, as you dig; and do not trample on the ground until hoeing time arrives. Ash-leaved Kidneys may be now planted.

ELDER-FLOWER WINE.—"A Subscriber" would be obliged by a recipe for this which has been called "English Frontiniac." Any of our readers sending one which they know to be good will oblige.

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WEEKLY CALENDAR.

NOV. 28—DEC. 4, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
a stript.	30.051—29.940	33—21	W.	—	41 a. 7	55 a. 3	0 57	24	11 52	332
rush resumes song.	29.973—29.932	45—31	S.	0.16	43	54	2 13	25	11 31	333
. ANDREW.	29.894—29.786	48—28	S.W.	0.23	44	53	3 28	26	11 9	334
VENT SUNDAY. Trees all stript.	30.116—29.934	48—29	W.	0.12	46	52	4 42	27	10 47	335
	29.821—29.419	50—40	S.	0.46	47	52	5 55	28	10 24	336
	29.521—29.415	40—31	N.E.	0.06	49	51	sets.	●	10 0	337
nnæan Society. Horticultural Soc.	29.542—29.520	39—19	S.	—	50	51	4a.50	1	9 36	338

n said that no book was ever published from which some nation could not be gained, and it is at least equally true ever lived from whose biography no useful lesson could be n some form or other every mortal offers us an example of be imitated, or of vice or slothfulness to be avoided. Sia affords us many of these lessons; for whilst we must hold he prominent passages of his life to our readers, as warnings ig a similar course, yet no one can avoid observing in him a e achievements possible to unwearied industry and rigid time. He was born about 1716,—the son of a Lincolnshire was educated to earn a living as an apothecary; and his n from honesty, were thus touched upon by Mr. Woodward, d wantonly attacked. "I do remember," says Mr. Woodpothecary, who whilom did reside in a small shop, or rather Martin's Lane; whilom in a smaller at Westminster; who remove from thence to the Savoy; and whilom did remove he country, 'culling of simples;' and who afterwards did make f the master of Chelsea Gardens, and did so cull in these t he never could get himself into them more, and, which is never get his name out of the books belonging to the same." rimony, wedded to a woman without a dowry, and unsucsiness, Mr. Hill's spirit remained unsubdued, and he strove otanical knowledge to his pecuniary advantage. In this he or the Duke of Richmond and Lord Petre employed him to superintend their Botanic Gardens, and to search the British new plants. His researches were great, and his industry but the harvest was small, and his patrons fickle. He lost ients, and turned player; but he was not calculated for the e failed even in the appropriate part of the half-starved apo-*Romeo and Juliet*. He resumed the pestle and mortar, as botanical inquiries; wrote unsuccessful plays; dispensed a military hospital; and translated Theophrastus *On Gems:* es, which obtained for him the witty appellation of *Harlequin* re is a tide in the affairs of men," and Mr. Hill took advanise in his, consequent on the publication of his translation. executed, and procured him friends, reputation, and money. by this success, says one of his biographers, he engaged in eater extent and importance. *A General Natural History, nt to Chambers' Dictionary*, and *The British Magazine* hree of many works in which he at once engaged—works d to require a man's whole attention, yet he carried on at the *daily* essay under the title of *The Inspector*. Notwiththis employment, he was a constant attendant upon every lic amusement—thus combining business with pleasure; for cted wholesale the anecdotes and scandals which he retailed ical literature. We must now speak of him as Dr. Hill, for n he purchased a diploma in medicine, and with this handle entered upon the life of a man of fashion. Equipaged, well the invited by those who feared as well as by those who scandals, he was a wasp buzzing in all gaieties, but whom no ceed in striking down. He could never be got into a law appily, he who was humble when in poverty now proved that humble only because he had nothing to sustain an exhibition like frozen carrion brought into sunshine, he now became ill. He who had been diffident was now self-sufficient; and pompous vanity claimed more than ordinary homage, his irit never allowed to pass unassailed any one who disputed he tribute. Hence his writings abounded with scurrilities on understandings, and personal peculiarities of others; and ed license produced its almost invariable consequences: he y caned; he was exposed in satire; he was ridiculed for e Royal Society, among whose members he had vainly sought d; and at length, like other lampooners, learning to prefer ke before his best friend, he sank into the ingratitude of he weaknesses of those who had borne him forward to The very Ishmael of literature, and borne down by the con- such malignity, and the town weary of such minglings of baseness, he sank in estimation nearly as rapidly as he had works found no purchasers, and the booksellers ceased to be

But he was still "Harlequin Hill;" and his next change, cessfully, was to the vocation of a Quack Doctor! He was d in the weaknesses of human nature—he had lived richly nature and its fear; and he now turned to its credulity, ing which the handle to his name was even more availing usly. *Doctor* Hill's "Essence of Water Dock," *Doctor* toral Balsam of Honey," and some other compounds, were be the results of his botanic and chemic skill, and that they rit of simples which were beneficently stored around our very ly common because powerfully and universally healing. The ed to the appeal, and the next step to listening is to buy. his panaceas was rapid, and once more the doctor lived in Among his dupes was no less a personage than the Earl of would-be Mæcenas and Minister of England, and equally in both. Dr. Hill under this patronage published a pompous *Botany*, in *twenty-six folio volumes*, presented a set to the eden, obtained in return a knighthood in the Order of the and just lived long enough to refute his own assertion, that e of Bardana was specific in the gout. He died of this s residence in Bayswater, on the 22nd of November, in 1775.

We have mentioned of his works a few which would entitle him to some notice in our brief chronicle; but there are many others in the catalogue of his works more than sufficient to establish his title, although we shall but mention his *Eden, or a complete body of Gardening*, and his *Gardener's New Kalendar*—folio volumes, expensive and worthless. It will be readily believed that a satirist so general in his flagellations had many a poignant scourging in return, and some of them are so racy that we must find for them lines of sufficient room. Sir John Hill had attacked David Garrick for confounding the letters I and U in some of his pronunciations, and this was Garrick's return thrust:—

"If 'tis true, as you say, that I've injured a letter,
I'll change my notes soon, and I hope for the better;
May the just rights of letters, as well as of men,
Hereafter be fixed by the tongue and the pen!
Most devoutly I wish that they both have their due,
And that *I* may never be mistaken for *U*."

Sir John had attempted to write plays as well as to act them; and this combination of the poet and physician was thus analyzed and estimated:

"For physic and farces his equal there scarce is,—
His farces are physic, and his physic a farce is."

Another critic epistolized him thus:—

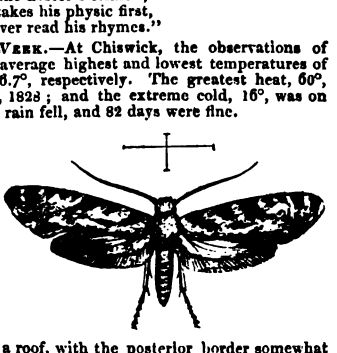
"Thou essence of dock, valerian, and sage,
At once the disgrace and the pest of this age,
The worst that we wish thee, for all thy vile crimes,
Is to take thy own physic, and read thy own rhymes."

To which another wit replied,—

"The wish must be in form revers'd
To suit the doctor's crimes;
For if he takes his physic first,
He'll never read his rhymes."

METEOROLOGY OF THE WEEK.—At Chiswick, the observations of twenty-three years show the average highest and lowest temperatures of these days to be 48.3° and 36.7°, respectively. The greatest heat, 60°, was on the 28th of November, 1828; and the extreme cold, 16°, was on the 29th in 1846. On 79 days rain fell, and 82 days were fine.

INSECTS.—One of the most injurious of these is the *Tinea granella*, the Corn Moth, or, as some call it most inappropriately, the Mottled Woollen Moth. Its larvæ or grubs are very destructive of all kinds of grain. For the following particulars we are indebted to M. Köllar.



When at rest, the wings of the moth are laid over each other sloping at the sides like a roof, with the posterior border somewhat projecting. The body is brown, mixed with a little white on the back. The head has a tuft of yellowish-white hairs. The eyes are black, and the antennæ are composed of many round joints, thread-shaped, and brown. The upper wings are of the same breadth throughout; white, spotted with dark brown and dusky dots. The brown spots often run into each other by means of the brown scales strewed between, and vary much in form and size in different individuals. The most certain mark is a spot of the same colour at the base, followed by an almost square spot on the outer or anterior border; behind this in a slanting direction runs a band-shaped spot almost through the whole breadth of the wings. Behind this are two dots on the anterior border, and immediately above the tips of the wings a larger brown spot. The posterior border is furnished with long brown-and-white mottled fringes. The under wings are smaller and shorter, brownish, and furnished with long fringes at the posterior edge. The male and female are exactly alike in colour, but the latter has a thicker body. This moth appears in May, June, and July, in the buildings where grain is stored up; it only flies about at night. Immediately after pairing, which usually takes place a few hours after the moth issues from the pupa, the female lays one or two yellowish-white oval eggs on single grains of corn. They can only be distinguished by a strong magnifying glass. A single female is capable of laying thirty eggs and upwards. She lays her eggs not only on grain laid up in storehouses, but even when it is still in sheaves in the field. After a few days, small white maggots proceed from the eggs, and immediately penetrate into the grain, carefully closing up the opening with their white roundish excrement, which they glue together by a fine web. When the single grain is no longer sufficient for their nourishment, the insects take another grain and unite it to the first by the same web, then add a third, fourth, and ultimately a great number together; the spaces between the single grains are filled up with excrement. These larvæ often leave this granular house, and run about over the corn, covering its whole surface so completely with a thick whitish-grey web, that scarcely a grain can be seen. In their fully grown condition the larvæ are from five to six lines long; their bodies are composed of thirteen segments, and provided with eight pair of feet, only the three anterior pairs of which are real feet, the others being wart-like appendages (pro-legs) adapted for moving the body. The head is brownish-red; the body light ochre or buff; on the

neck are two brown transverse stripes bent forwards. In the month of August or September the larva is fully grown, and ready for its change. It now leaves the corn-heap and betakes itself to its winter quarters. The cracks and fissures in the floor, in the walls, and in the roof of the granaries, are full of larvæ at this time; they gnaw the wood into fine chips, from which they form themselves a cocoon or pupa-case in the same way as they previously formed their web. In this case the larvæ remains without taking any nourishment the whole winter. Not till March, April, or even May, according as the warm weather sets in, is it transformed into a brown pupa, the posterior part of which is much lighter than the other part, and the last segment of which is provided with two points. In about three weeks the pupa pushes itself by means of these points nearly half out of its case; and in about half an hour afterwards the skin splits and the moth comes out.—(*Treatise on Insects.*)

When grain is affected with this grub, the most effectual remedy is to submit the grain for some hours to a heat of about 200°. This kills the grub, but the grain is afterwards just as good for grinding, and probably for sowing too, as if it had not been thus heated.

WHAT the *Baobab* is among trees, and the *Rafflesia Arnoldii* is among parasites, the Victoria Lotus, or Water Lily, stands forth among the water plants. It is the foremost, the most beautiful, and the sweetest of all that dwell within the waters, and, therefore, fitly dedicated to our Island Queen. Not one of the least extraordinary facts connected with this sovereign of the Water lilies is that, familiar to Europeans as have been the products of South America for some centuries, traversed as have been her rivers, ransacked as have been her mountains and streams for their natural productions, and though the seeds of this very plant were known in her markets, yet this, one of the monarchs of the vegetable world, was not even indistinctly known until the year 1827.

We have now before us an appropriate biography of this beautiful aquatic, in one of the most elegant little volumes recently issued from the press. It is entitled, *The Royal Water Lily of South America, and the Water Lilies of our own Land; their History and Cultivation.* Its author is Mr. Lawson, to whom our pages are indebted for a monthly comment on our "Wild Flowers." We recommend it without any reservation to our readers, for they will find in it all that is at present known relative to the Victoria Lotus, with some very good coloured illustrations of its appearance, and of the appearance of our native Water lilies when floating in their appropriate element.

The Victoria Lotus, as is stated by Mr. Sowerby, has been noticed under the six following names by the authors, and at the dates attached to them :—

"*Euryale Amazonica*, Poeppig, 1832; *Nymphæa Victoria*, Schomburgk, 1837; *Victoria Regina*, Gray, 1837; *Victoria Regalis* (Gray)? 1837; *Victoria Regia*, Lindley, 1837—Hooker, 1840; *Victoria Cruziana*, D'Orbigny, 1840. It is clear that the oldest of these names is Euryale Amazonica (and unless it be thought proper to accept the provincial names, one of them must be employed); now, therefore, that it is found that the plant does not belong to the genus Euryale, and that it forms the type of a new genus, the specific name Amazonica ought to be retained, or rather it ought never to have been altered. As for the 'permission of her Majesty,' our loyalty need not to be alarmed, for it appears most probable that the 'permission' only applied to the name Victoria along with the generic name Nymphæa in Sir R. Schomburgk's letter before it was revised, Regina being an afterthought. Her Majesty will not be offended by that name being adopted which is most in accordance with accepted rules. I would, therefore, call it Victoria Amazonica. The Victoria Cruziana of D'Orbigny is supposed to be only a variety."

Now, as the new flower is certainly not an *Euryale*, and there are sufficient distinctive characters to separate it from the old *Nymphæa*, there can be no objection to the next generic name, VICTORIA, even if founded only upon the claim of botanical precedence. However, a big-endian-and-little-endian controversy has arisen as to the right, founded on the order of time, of calling it *regia*, or *regina*—a dispute so important that we shall not venture to intrude into the contest.

Regia, meaning royal, we shall venture to use it as the most appropriate, until we are convinced that by so doing we shall be guilty of botanical heresy, and will now leave such weighty matters to make room for what is more agreeable, a sketch of the history of the plant.

Victoria regia, the Royal Victoria Water Lotus, is found in some of the far inland and still waters connected with the branches of the Rivers Plate and Amazon; and the first botanist whose heart was gladdened by its discovery was M. Hænke; he found it on the marshy banks of the River Mamoré, somewhere about the year 1801; but M. Hænke was added to the martyrs of science, and almost the only note of his discovery will be found in the following extract from the papers of a subsequent discoverer :—

"In the year 1827, M. A. D'Orbigny discovered this vegetable wonder on the river Paranà, at a part of this 'majestic stream' nearly a league in breadth, although distant 900 miles from its junction with the Rio Plata. He communicated specimens, along with his other collections, to the Museum of Natural History at Paris, in the same year. He gives a very interesting account of the Victoria Water lily, and also of another allied plant, which he supposes to be a distinct species, although we feel more inclined to follow the general opinion of botanists in considering it a variety only, more especially since Mr. Spruce has recently observed different flowers from the same root, varying in their appearance, and uniting the characters of Victoria Regia and M. D'Orbigny's second species, for which he proposes the name of Victoria Cruziana. To the *Botanical Magazine* are we indebted for M. D'Orbigny's remarks in an English dress, and these are withal so interesting, besides containing almost all the information that is known concerning the supposed *second* species, that we must introduce them here at full length. He says :—'If there exists in the animal kingdom creatures whose size, compared with our own, commands admiration by their enormous stature; if we also gaze with wonder on the giants of the vegetable kingdom, we may well take especial pleasure in surveying any peculiarly wonderful species of those genera of plants which are already known to us only in more moderate dimensions. I shall endeavour to express not only my own feelings, but those of MM. Bonpland and Hænke, for we were all alike struck with profound emotion on beholding the two species of *Victoria* which form the subject of this note. For eight months I had been investigating, in all directions, the province of Corrientes, when, early in 1827, descending the river Parana, in a frail pirogue, I arrived at a part of this majestic stream where, though more than 900 miles distant from its junction with the Rio Plata, its breadth yet nearly attained a league. The surrounding scenery was in keeping with this splendid river; all was on a grand and imposing scale, and being myself, only accompanied by two Guarani Indians, I silently contemplated the wild and lovely view around me; and I must confess that, amid all this watery waste, I longed for some vegetation on which my eye might rest, and longed in vain! Ere long, reaching a place called the Arroyo de San Josè, I observed that the marshes on either side the river were bordered with a green and floating surface; and the Guaranis told me that they called the plant in question 'Yrupé,' literally water-platter, from *y*, water, and *rupé*, a dish. Its general aspect reminded me of our *Nénuphar*, belonging

to the family *Nymphæaceæ*. Nearly a mile of water was overspread with huge round-margined leaves, among which shone, sprinkled here and there, the magnificent flowers, white and pink, scenting the air with their delicious fragrance. I hastened to load my pirogue with leaves, flowers, and fruits. Each leaf, itself as heavy as a man could carry, floats on the water by means of the air-cells contained in its thick projecting innumerable nerves, and is beset, like the flower-stalks and fruit, with long spines. The ripe fruit is full of roundish black seeds, white and mealy within. When I reached Corrientes, I hastened to make a drawing of this lovely Water lily, and to show my prize to the inhabitants; and they informed me that the seed is a valuable article of food, which, being eaten roasted like maize, has caused the plant to be called Water-maize (Mais del Agua). I afterwards heard from an intimate friend of M. Bonpland, the companion and fellow-labourer of the famous Humboldt, that having visited accidentally, eight years previously to my visit, a place near the little river called Riochuèlo, he had seen from a distance this superb plant, and had well-nigh precipitated himself off the raft into the river, in his desire to secure specimens, and that M. Bonpland had been able to speak of little else for a whole month. I was so fortunate as to get dried leaves, flowers, and fruits, and also to put other specimens in spirits; and about the end of 1827, I had the delight of sending them, with my other botanical and zoological collections, to the Museum of Natural History at Paris. Five years afterwards, when travelling in Central America, in the country of the wild Guarayos, a tribe of Guaranis, or Caribs, I made acquaintance with Father La Cueva, a Spanish missionary, a good and well informed man, beloved for his patriarchal virtues, and one who earnestly devoted himself to the conversion of the natives. The traveller, after spending a year among Indians, may easily appreciate the pleasure of meeting with a human being who can understand and exchange sentiments with him; and I eagerly embraced the opportunity of conversing with this venerable old man, who had passed thirty years of his life among the savages. In one of our interviews, he happened to mention the famous botanist Hænke, who had been sent by the Spanish government to investigate the vegetable productions of Peru, and the fruit of whose labours has been unfortunately lost to science. Father La Cueva and Hænke were together in a pirogue upon the Rio Manoré, one of the great tributaries of the Amazon river, when they discovered in the marshes, by the side of the stream, this plant which was so surpassingly beautiful and extraordinary, that Hænke, in a transport of admiration, fell on his knees, and expressed aloud his sense of the power and magnificence of the Creator in his works. They halted, and even encamped, purposely near the spot, and quitted it with much reluctance.'"—*Lawson's Water Lilies*, 32-6.

Various attempts, all more or less abortive, were made to introduce the *Victoria* into our stoves, until the year 1849.

"This time, the seeds were put into phials of *pure* water, and forwarded per mail to the Kew Gardens by two gentlemen, whose names will long remain on record in connection with the Victoria's history—Hugh Rodie, Esq., M.D., and —— Luckie, Esq., George Town, Demerara. The first arrival of seeds from these gentlemen was in February, 1849. These seeds proved quite perfect and fresh; and three other importations, sent at different times, shortly afterwards, all arrived safely at Kew in the like good condition. By the end of March, six healthy plants had been raised from the seeds first received from Messrs. Rodie and Luckie, and those which afterwards came to hand continued to germinate from time to time. More than fifty plants were in all produced, and were in good condition by the latter end of summer.

"So soon as the seedlings were in a fit state for safe removal, they were liberally distributed to distinguished private cultivators and public gardens in various parts of the country. It was only in some of the establishments, however, to which it was sent, where accommodation sufficient for the colossal Water lily could be provided, and in such only did the plants survive. In a few instances, under the most favourable circumstances, have the plants been successfully cultivated, and produced flowers and fruit.

"Among other gardens to which the seedlings of the Victoria were sent, one was received on the 3rd of August, 1849, at Chatsworth, the seat of the Duke of Devonshire, long celebrated as one of the first horticultural establishments of Europe, and of peculiar interest to the botanist and the scientific gardener, from the magnificent display of rare exotic plants which it at all times contains. Mr. Paxton, chief gardener to his Grace, being anxious to afford the Victoria every accommodation, and, if possible, to bring it into a flowering condition, immediately prepared a tank, expressly for its reception, measuring twelve feet square, wherein it was planted on the 10th of August. Although the plant was of very limited dimensions when received from Kew, having only four leaves, the largest of which measured only four inches in diameter, yet it soon increased greatly in size, and, by the latter end of September, nineteen leaves were formed, the largest measuring three feet six inches across, or about eleven feet in circumference. The tank became so crowded of leaves, that it was soon necessary to enlarge it to double its original size, to allow of the full development of the plant; and it was not long before even that was found insufficient for the extent of its gigantic foliage. Although there were only thirteen leaves, yet the dimensions of each measured from four to four feet six inches across, or from sixteen to eighteen feet round. It was observed, that although the plant was thriving vigorously, yet the leaves, which had always been described by observers of the Lily in her native waters as curiously turned up in the edges, remained quite flat—an occurrence for which various causes have been assigned. Even in this form, however, the foliage was very buoyant, although certainly not so much so as when fully developed under the suitable natural conditions. It is related of the Chatsworth plant, that a young lady enjoyed a sail on one of the gigantic leaves, a board being placed upon it to prevent her feet going through the fragile vegetable texture. Thus, as has been remarked, Homer's fabulous story of Venus floating on the Water lily leaf might be repeated as a practical feat, instead of remaining a merely poetical fiction. When the plant increased in age, the leaves presented a different appearance, and the peculiar turned up margins, not observable at first, became evident, so much so, that some of the leaves are described as having 'presented a perfect rim, like that of a common garden sieve,' although in no instance has this been so remarkable as in the wild plant when grown in the American waters.

"On the 1st of November, 1849, a flower-bud appeared upon the Victoria at Chatsworth, indicating a condition of advancement beyond what had been attained by any of the other plants, at Kew, or elsewhere in England. By this time, thirty-one additional leaves had been produced, the largest of which measured four feet ten inches in diameter. Some of the more vigorous leaves, at particular stages of their growth, are recorded to have increased in diameter at the remarkable rate of sixteen or eighteen inches in one day. On the evening of Thursday, the 8th of the same month, between five and eight o'clock, the petals of this flower partially opened; but they again closed during sunlight on Friday the 9th, and fully expanded the same evening—thus rewarding the care, skill, and industry, which Mr. Paxton had expended in its culture, by according to him the honour of flowering, for the first time in Europe, the most extraordinary and the most beautiful vegetable production of the tropics, the successful cultivation of which had baffled the skill of the celebrated horticulturists who had previously attempted it."

We have seen this beautiful aquatic, and must confess that the flower disappointed us, as little exceeding in beauty our own White Water lily; but the leaf certainly surpassed our expectation in the novelty of its construction, to say nothing of its form and size. It belongs to the Natural Order *Water lilies* (Nymphæaceæ), and to 13-*Polyandria* 1-*Monogynia* of Linnæus.*

* The Rev. R. A. C. will find directions for the cultivation of this and all other water plants, under the title AQUATICS in the fourth number of THE COTTAGE GARDENERS' DICTIONARY.

A FIVE-POUND GREENHOUSE.

SINCE we wrote upon this subject at page 59, we have received so many inquiries for further details, that we have had no alternative but to trouble our friend J. B., and by the aid of his pen and by the aid of the pencil of his wife, who is no mean artist, we lay the following before our readers, requesting such of them as have sent us queries to glean answers as they travel on:—

"I am sorry any of your readers have fallen into the hands of such rivals as the stove makers. They may comfort themselves with the reflection that the greatest rivalry exists among equals, and then their difficulty and delay will have an end. Very likely there is not a pin to choose between either the vessels or the fuel. The action of the stove I have I know, therefore I approve of it, without condemning the other.

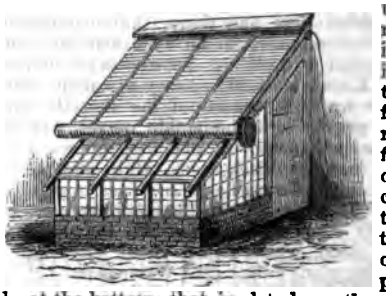
"Now, for other queries in order. I was not content with the pan only, because it did not serve the same purpose as the oven. The pan being small and shallow and placed immediately upon the stove, would get very hot in weather which required all the heat the stove could produce; and, therefore, it will be perceived I did not use it until the sharpest part of the winter had passed; and then, with the reduced temperature, it was quite hot enough to strike cuttings of Verbenas and Petunias in ten or twelve days, to pot off and prepare for bedding out. My oven being much lower in temperature, would not have accomplished this, but neither would the pan have suited my seeds; in the pan, the seedlings would have spindled up in a few days, weakly plants at the best, and every one must have been potted and preserved: whereas, coming up gently in the oven (which was more than a yard one way and nearly as much the other), my seeds came up sturdy fellows in rows four inches apart. I had two dozen differen kinds of seed in, all at one time, and when the weather suited to plant them out, a small trowel lifted a few at a time, without any disturbance, and they rejoiced in their new situation as if no removal had occurred. It will also be seen that, as the weather became milder, there would be no necessity to continue the heat under the oven, except when the house required it. On the contrary, the slips of Verbenas, &c., when once put in to the sand, required a continuous heat. Another reason why the oven was preferable for general us was that the bricks around, although loose and offering no hindrance to free circulation of he heat, grew warm in themselves, and increased the general temperature. Another reason was, that in order to replenish the stove, it was needful to lift the pan off every time this operation was performed; and as more delicate arms than mine were sometimes engaged in this operation, we did not continue it longer than was absolutely required.

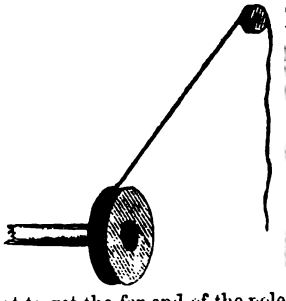
"The pan we found useful for striking slips and germinating such seeds as *cucumber, pumpkin, Ipomea, Indian convolvulus*, and such things as when struck, or up two inches, could be potted off. I have now (Oct. 23rd) fine blooming plants of *Salvias, Ageratum, Celsias, Nierembergia*, and of many other plants whose names I do not know (the slips of which I begged from my friends, the working gardeners, while visiting their houses in February and the beginning of March), together wi almos every variety of *Fuchsia*, all of which owe their origin to my pan.

"The oven is suitable for seeds and such things as are not required to grow quickly, and yet which are greatly holpen by a slight bottom heat, and which, again, will not suffer by having that under heat occasionally removed.

"The *charcoal* I get is procurable at any of the London dealers, price 1s. for a two-bushel sack; the pieces about the size of a walnut. It is well to keep by you some larger charcoal for lighting, and also when the weather is extremely cold to mix with the finer, in order to increase the draught. The quantity consumed depends on the coldness of the weather.

"My *blind* is fixed at the top of the roof, the roller passing up and down when required, as shown in the accompanying drawings. A thick string passes from the hand round a pulley fixed at the corner of the roof, and continues onward to the wheel attached to one end of the pole. Supposing the wheel to be at the bottom, that is, let down, the string will then be turned many times round the large wheel, say six inches in diameter. The action is thus:—You pull the string passing over the pulley, which unwinds the string turned many times round the wheel, and as the string is gathered into the hand the pole turns round, winds up the blind, and proceeds with its burden until safely landed under its wooden covering at the top. There is some little accommodation required to learn how best to get the far end of the pole to reach its destination at the same time as the near end; but this, like all such matters, simply requires a slight observation to make the arrangement simple and effectual. My covering or locker for the blind, when drawn up, works on hinges and shuts down, resting on the roof; thus securing the blind from rain or damp.





"The *bearers* I mentioned are four in number, about three inches from the roof, half an inch thick, and are not intended for strength, but to preserve the heat generated within, and to exclude more effectually the outer cold as once directed in THE COTTAGE GARDENER. You will perceive that my bearers project beyond the glass at the lower ends. I let the blind down one foot beyond the glass, which, I think, will quite serve the purpose of a blind for the front in keeping out the frost.

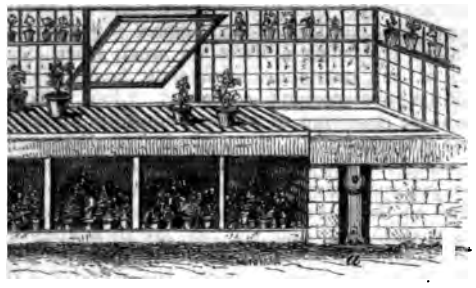
"My winter *blind* is composed of a brown coarse stout stuff, such as is used for packing, namely two yards wide, at 9d. per yard. Before I fixed up my cloth, it was stretched on the ground, and brushed well over twice with boiled linseed oil. The rain runs off, leaving the under side quite dry. This oiling also fills up the intervals between the threads and adds to the warmth, besides rendering it more durable. If no summer shade is required, it would be better to remove the winter covering altogether when done with.

"I gave the stove maker 2s. for the pan and for altering the register.

"I have had my greenhouse but one winter, and fashioned it for the sole purpose of keeping my *Geraniums;* therefore, geraniums of every variety formed my main store. I did, indeed, manage to keep *Petunias*, and *Verbenas*, and *Phloxes*, and a few other trifles in blossom the greater part of the winter; and, for the first season, these were sufficient gratification for a young *artiste*. This winter I am trying a higher flight with some other plants, but how I shall succeed time only will show. I begin well with *Geraniums*, likely, in succession, to flower for months to come, the *serratifolia Fuchsia* flowers all the winter I am told; the *Citisus* is a good plant, and the *Acacias*, or *Mimosas*, are looking well for early flower. I have also the *Lotus* promising to blossom for some time to come, and the *Cuphea*. By planting slips in autumn, I hope to have *Petunias* and *Verbenas* in flower through the winter, though inferior to those invigorated by the summer sun. There are the *Crassulas*, the *Sedum*, and the *Mesembryanthemum* of that tribe, and the *Plumbago Capensis*. Then for climbers, I have the *Tropæolum Lobbianum* and the *Cobea scandens* now in flower. Then there are the *Tree violets* and the *Auricula*, old, indeed, in name, but scarcely to be matched by the moderns.

. I have been asked, whether the pan would do for
r? The removal of the pan with water would be
us to the cinders and sand above, unless it had a
ght covering; but no doubt it would answer. The
ure of my house (see the dimensions) could be
y the stove I had, about 15°, with the register open
Leaving the register in a certain position, the heat
would continue the same, but the temperature of the
ould be regulated by the external atmosphere.

"J. B."



FRONT OF GREENHOUSE INSIDE.

THE FRUIT-GARDEN.

ECTION FROM FROST.—The fig is one of the first
ruit way to require a little defence against severe
; but there is no occasion, indeed it is bad
to cover up too soon, for such frosts as occur
December sets in tend rather to harden the wood
herwise. Moreover, covering for a very long
s apt to engender an amount of confined damp,
s in a degree prejudicial to the bark of most things
vegetable kingdom. Close covering should be
with the fig: this is a tree which does not need
rotection. There are several modes of covering
d, but we are not aware of any better than that of
in either spruce boughs, or fronds of fern, as thick
ble; commencing at the bottom of the wall, and
ng each tier, as in thatching a building or stack.
is particularly adapted for the purpose, for it
desirable property of casting its leaves in a
ive way in March and April; thus gradually
the tender and swelling bud or fruit germ to the
d air.

persons tie straw in wisps, and hang these on
verlapping each line successively, as with the
This is, however, rather too fussy a proceeding;
ld have all practices of this kind reduced to a
m amount of both trouble and expense, which
as indeed, as to gardening in general, are nearly
nous.

rmer days it used to be a practice, with some
rs in the neighbourhood of London, to unnail
entirely from the wall, then to prune them, and
o bend and strap them down almost parallel
e horizon; they would then closely encase them
ats, and really the whole proceeding, when
up, was tolerably expensive, and without any
surate benefits.

who cannot get spruce boughs, will do well to
o the use of new straw, which may be thus
:—Let the operator cast a sharp eye over the
ees, and see if he cannot throw the whole of the
to three, four, or more groups, according to their
By a group we mean the fastening, from right
, a considerable number of supple or inferior
s to one of an older and sturdier character, and
hus being averse to bending is eligible to form
to each group. An extent of walling of some
lozen yards in length may thus be thrown into
five or six groups, and they may be drawn very close together with either willows or string. The groups will, of course, be nearly perpendicular, and the operator may now merely tie straw (drawn into thick wisps) all the way up and around each group. This plan is so simple that an active labourer will complete half a dozen yards in a half day's work. Of course the whole of the group must be surrounded with straw, and some may be tucked amongst and behind the shoots towards the wall. We never knew them suffer during the hardest winter if thus protected; still the fir boughs are better, as requiring no unnailing of the trees.

One thing must here be observed; where figs are very fruitful it is not unusual to meet with a host of little fruit late in the autumn; all those which are as large as a horse bean may at once be stripped off, as they are only exhausting the tree,—being sure of destruction. Another point: figs should not be autumn-pruned. Let all the shoots remain on until the buds begin to swell in the end of April, and then the veriest tyro may distinguish with ease between the good or bearing shoots and the inferior. After the figs are covered, some coarse litter should be applied over the surface of the roots close to the wall, in order to protect the collar from injury.

THE BRITISH QUEEN STRAWBERRY.—Here is another fruit belonging to the protected section, and one so valuable, when highly cultivated, as to be deserving of a considerable amount of care. Everybody admits that it is somewhat tender, as regards extreme weather we mean; as to its presumed tenderness as to cultural operations, that we have nothing to do with at present. Where they are grown in rows, we advise an immediate application of mulch, of a somewhat littery character, such as the half decayed linings of old melon frames, of about the texture of mushroom dung when sweetened. This should be tucked in closely, and even a little introduced with the hand amongst the crowns.

In addition, it will be found capital practice to stick fir boughs, or the fronds of fern, amongst them, so as to arrest the radiation from the root upwards; and such may be introduced tolerably thick; that this will obstruct the light is an argument of no weight whatever between the end of November and the middle of February. About the latter period the mulch will have to be partially dressed away from the crowns, and may then be spread between the rows, where it serves the double purpose of manuring the soil and encouraging a permanency of moisture to the surface fibres; for we have known strawberry crowns (somewhat elevated above the ordinary level) suffering from drought, as to their surface fibres, in the month of May, whilst all the while the lower roots were saturated in a cold and undrained soil. In our opinion, by far too little attention is paid to what is termed "mulching;" in the early part of May, or even a fortnight sooner in some parts, we would have all naked soil between strawberry rows covered two inches thick.

We do hope that our gardening friends will thoroughly repudiate the idea of cutting away the decaying leaves at this period. Let them rest assured that nature, not accident, did not decree their shrivelling on the plant in vain. This is one of the cases in which a desire to carry out neatness of appearance must give way to a principle of culture. Neatness is, indeed, a great essential in all gardening, but as soon as it becomes antagonistic to the greatest amount of success, the point should be instantly given up, unless the circumstances are very peculiar indeed.

These remarks are intended to apply to *all* our *strawberries*, for in no one case have we ever found a benefit in this unnatural and forced procedure, but the reverse. The inventor of this piece of error has probably before now paid the debt of nature, or we should almost desire

to see his ears clipped, in order to expiate the mischief of which he has been the origin.

THE BLACK CURRANT.—It may seem odd to particularise this at the present moment, but there is a feature connected with it in our mind's eye which deserves a passing notice. If any one who cultivates this valuable fruit by the top-dressing system, as heretofore recommended in these pages, will just examine its root action at this period, by merely scraping away a little of the "mulch" applied last April or May, he will find *myriads* of white fibres apparently in full action. These, it will be readily seen, have been called into action by the surface dressing, in the absence of that meddling enemy of fruit-trees, the spade. Now, since they have been coaxed to the surface, they should not be permitted to be checked by the vicissitudes of a severe frost, without slight assistance. We suggest, therefore, what has been long our practice, and that is, that a little old mulchy material be spread over their root surface the moment they are pruned, and this should be accomplished forthwith.

These interesting white fibres are, indeed, a beautiful illustration of the fact, that the sap of many of our deciduous fruits, natives of northern climes, is, perhaps, *never completely* at rest, even during the period of the greatest dormancy. No sooner is the cellular system of the plant emptied in part of its mere watery surplusage, through the completion of the elaborating period, than nature at once commences a refilling process, which proceeding, less or more according to circumstances, all through the winter, so changes again the whole system of the plant, that the buds become impatient to burst with the least excitement of a returning spring.

Now, it is not worth while to suffer this revivifying current to expend itself, in renovating portions of the bush about to be pruned away; better by far to husband those valuable resources by early pruning; and for this reason the black currant, above most of our fruits, claims early attention in this respect. This done, and the prunings cleared away, let a little well decayed mulchy material be spread an inch or two over the surface of the roots.

Having now dipped into miscellaneous matters connected with out-door gardening, let us advise that all *wall-trees* be immediately examined, in order to draw all superfluous or rotten shreds and nails from the trees. And in order to effect this completely, any remaining leaves left on the trees may be plucked away, or whisked off, with a few small twigs.

We do hope that this will not be thought inconsistent advice, seeing that this course has been strenuously opposed in these pages. It is one thing to oppose the proceeding in the early part of October, and another to recommend it in the end of November. No harm will accrue now, and it becomes necessary for system and decency's sake. This carried out, the borders may partake of the general cleaning consequent on the fall of the leaf, and the removed shreds and nails, being immediately dried, will furnish one item of in door work for the labourer during inclement weather.

ROBERT ERRINGTON.

THE FLOWER-GARDEN.

CRATÆGUS.—*The Hawthorn.*—People who have paid little attention to our best selections of flower-garden trees, may think that I spoke too favourably of this family at the end of my last letter. There could not be a greater mistake. No writer, be his abilities what they may, could overrate them; that is, a selection of them — just what I am about doing. The late Mr. Loudon described, I think, eighty kinds of them, and figured more than half that number in his great work on the hardy trees and shrubs of Great Britain; and then strained all his iron nerves to spread a knowledge and taste for them; and some dozen or fourteen years back much was done to the same effect by giving figures of many of them in the *Botanical Register;* since then we have heard very little about them. But if I had the poetic vein of Ossian, I could sing their praises to the farthest off corner of the three kingdoms. However, as I am no poet—no, not so much as to whistle a tune properly—and as Mr. Loudon's praises might appear too highly coloured for sharp thorns, I shall give a short quotation from the *Botanical Register;* so that if I lay on the brush a little too much when describing any of my own more immediate favourites, I shall still be in respectable company. "Few hardy plants are more deserving of general admiration for the neatness of their foliage, the diversity of their manner of growing, the beauty of their flowers in the spring, or the gay appearance of their numerous richly-coloured haws in the autumn, than the various species of the genus *Crataegus;* and yet they are little known, except to the curious collector. They are not very frequently seen in gardens, if we except a few varieties of the common hawthorn; and botanists themselves have paid them but little attention. I, therefore, propose to avail myself of the circulation of this work for the purpose of bringing the subject into more notice, and of showing how very well deserving the species of Cratægus are of general cultivation: but as they are very much alike in flower, and as their strongest claim to be considered ornamental plants arises from the beauty of their leaves and fruit, it is in the latter state that they will generally be represented."

I, too, have just proposed to avail myself of the circulation of THE COTTAGE GARDENER, which has the largest circulation of any work I know, for the self same thing.

Of all the thorns, that which the greater number of persons admire the most while in blossom, is the *Scarlet thorn.* Every one knows a scarlet thorn when he sees it in bloom, but not one out of five thousand, even in this country, has ever yet seen the *best* scarlet thorn, and, perhaps, not the second best. If, therefore, a second-rate variety of it has been so much admired and spoken of, how much more would a splendid first-rate sort be run after, if half the world should but know of its existence—but not to stop here. Suppose we were to learn now, for the first time, that the Chinese, or the Chilians, were in possession of a dazzling scarlet thorn, and the flowers of it were perfectly double, why the one half of us would not believe the good news, and the other half would be for sending after Mr. Fortune to hunt out the prize for us, even if he had to battle with the pirates again before he got possession of it. But, in truth, this very double and very Scarlet thorn is at the door of every one of us. Every nurseryman of note in the kingdom has plenty of it, and to spare, and would, no doubt, sell plants not at a guinea a-piece, but at the price of a second-rate verbena, and you might buy a dozen of them for less money than would be asked for a seedling fancy geranium, which may turn out to be not worth a groat after the first season or two. The best name to ask for it in the nurseries, is *The New Double Scarlet Thorn;* for if you give it a Latin name, perhaps you may puzzle them, and get the double pink for your pains, because it has more than one Latin name. *Punicea flore pleno* is the best of its Latin names, *Rosea superba pleno*, or *multiplex*, is the next best; but the best way is not to multiply or perplex with hard names; and there is a single kind of it, with darker scarlet flowers, which they call *Punicea*, or *Rosea superba;* and if you buy the one be sure and have the other also. They are two of the finest flowering trees that will blossom in England next May, and yet they are seedlings of the common thorn in the hedges; and they prove conclusively that the English

e most expert gardeners for improving flowers, gh we have not got the nack of raising better fruits ur neighbours.

rientalis (The Eastern Thorn).—There are half n thorns which I call my own favourite trees, hink this must come in as the next best after the flowering ones. The flowers of this are nothing if so good, as those of our "May;" but the beauty of the tree is in the autumn, when it is with the haws, which are large, of a *dark purple*, or port wine colour—and not amiss for eating. all it, also, *sanguinea*, or Blood-red-fruited Thorn, me other names besides, for many of these thorns aded with synonymes; many of them, and this *lis*, among the rest, were called *Mespilus*, or rs, in olden times. Tourneforte found it first, in when on his travels in the Levant, growing in the and the northern borders of the Black Sea, and ned it *Mespilus orientalis*. It does not accord with May" in the south-east of Europe, as it does not till the very end of May in this country.

ronia (The Aronian Thorn.)—This is the next best which has less thorns on it than the generality of and chiefly valued for the abundance of its *yellow* n the autumn, which are good to eat, and last in om September till they drop off about the end of onth. It makes a very handsome middle-sized vith fine leaves variously cut, or lobed, like most thorns. There are no plants more difficult to tand from pen descriptions of the leaves than the nt kinds of thorns with jagged leaves, as a great pends on the kind of soil they are growing in; and mes you might pick half a dozen forms of leaf off me tree. The Aronia is a native of the south-east ope,—from Greece, eastward.

anacetifolia (The Tansy-leaved Thorn).—If this would bear as many fruit at one crop as Acouia, people would think it the handsomest of them all. gged large leaves are of themselves very hand- and the *yellow* fruit on good land attains the size of all the haws. It is a strong upright g tree, and without "stopping" the branches are t to grow wide apart when the tree is young and us, and without pruning at an early age I have ery gawky specimens of it. Every young tree or about the garden, however, gets a yearly g now-a-days, but summer stopping is the best bring any of these thorns to a well balanced When a young shoot is seen to push much er than the others, it should at once be stopped; s often happens, when such stopped shoots break o more lateral spray than is convenient to keep t crowding the head of a tree, the right way is to the superfluous parts close to where they started winter pruning, so that no more growth can be there. Inexperienced persons are very apt to a wrong step with this kind of pruning in any hey take in hand; they think that where a set of es are too close to each other, the remedy is to cut nany of them to a few joints, but if the plant is us, this kind of spur-pruning only aggravates the n-fold—a host of fresh shoots issue from the spurs llowing season. In all cases, therefore, where d shoots are to be dealt with, the proper way is to e over-stock of them clean off from the parent , and if this is done before the growth is more than old, no more shoots will ever come from the same the branch. Thus stopped and pruned at the tting off, the Tansy-leaved Thorn will soon form l as handsome and well balanced as any of its . It is a native of all the higher mountains of , and was described by Dioscorides in his "Botany," by the name of *Mespilon*, our Mespilus, ng "a spinous tree, with leaves like hawthorn, fruit like a little apple, sweet, with three hard seeds." They say of this great herbalist, that he was not over particular about how he described his plants; but he made a good hit of his "Mespilon," no doubt from his having partook of the "little apples," on their native hills; only we in this country often find five instead of "three hard seeds."

C. odoratissima.—Perhaps this is the next best thorn, but at this stage there are seven or eight kinds which are equally good, and therefore it must be left as an open question for the present. At a short distance, when this one is not in flower or fruit, it might be mistaken for the last, but a practised eye would see their difference in the middle of winter: this one having the branches spreading out laterally, while the last has them quite upright and less downy. The leaves of both are greyish, with a woolly down. The fruit of this is large, *dull red* or brick colour, and freely produced. The name is the worst thing about it: *odoratissima* means the sweetest, and that is a botanical fib, not one of them being sweeter or even so sweet as our own "May." It is a native of the Crimea and parts bordering on the Black Sea.

C. Azarolus (The Azarole Thorn) is another of the downy-leaved ones, with large *red* mealy fruit, which is eaten in the south of Europe, but with us is too sharp or acid to be indulged in. It makes a handsome middle-sized tree. A native of Italy and the south of France.

C. coccinea is a most handsome tree, with an indifferent name, which is just as likely to lead people into error as not: *coccinea* refers to the *scarlet* fruit, which is not more scarlet than the other bright red-fruited kinds; but the beauty of this does not depend so much on the fruit as on the fine leaves, and low spreading character of the branches, and the light colour of the old bark, which, like that of the birch, is very conspicuous in winter. I never heard of it being recommended for a stock to work the smaller sorts on, but I am quite sure it would make the best stock of any of them for that purpose. There are scores of this *coccinea* here about the Park, the soil of which is light, and in many parts only a few inches above the chalk; yet I never saw thorns in general do so well anywhere as they do here. I am within the mark in saying there are five hundred handsome full-grown specimens of them within the deer fence; and many of them could not be trained by hand into better shaped heads above the browsing line. And as to bush thorns, there are a thousand of them, if there is one; and when they are in flower the air is loaded with their fragrance, and you might look in the morning out of a bed-room window on a grove of them, and think there had been a fall of snow the night before. Now, amongst all these thorns, this *coccinea* is as healthy as any of them, and at thirty years old is but a very small stemmed tree; and if it should ever become fashionable to have little standard thorns, like standard roses, this should be used as a stock. If the country was searched for curious little thorns, they might be found no doubt of such a size as would never grow bigger than a *Brennus* standard rose. I mean those of—I hardly know how to call them—deranged growth, which country people call "birds' nests." A vigorous shoot is arrested suddenly in its growth, turns gouty at the end, and makes a bundle of little shoots, these little shoots never extend more than an inch or so in a season, and look at a distance as if a mistletoe bush was growing in the tree. Now, by taking buds from shoots in this state, you would only perpetuate the deranged condition, and transfer it to a new parent, and that parent should be *coccinea*, or a variety of it called *coralina*; and there is another variety of *coccinea* called *maxima*, which they say is the best sort of the three for a garden plant, but I never saw a full-grown plant of it myself.

C. pyrifolia (The Pear-leaved Thorn) is also a large-leaved sort, with close-growing branches, and small

fruit of *reddish yellow* colour, and produced in abundance, making the tree look very rich late in the autumn; and if not devoured by birds, which are fond of it, it dries on the tree, and hangs in black clusters all the winter. It is a native of North America, and grows, on good soil, to a large tree from 20 to 30 feet high.

C. macracantha (The Long or Large-spined Thorn.)—Very long stiff spines, and large plain leaves, with *shining red* fruit, produced in large clusters and early, are the chief characteristics of this one; besides, it always looks healthy, and does not come to a large size for many years, therefore, it is one of the best of the large-leaved sorts for small gardens. A native of North America, with very succulent fruit for a thorn.

C. Oliveriana (Oliver's Thorn).—A very distinct variety of the common hawthorn, with small hoary leaves deeply cut, with small *black* fruit, very numerously produced, and are very ornamental in the autumn. Well worth having.

C. heterophylla (Various-leaved Thorn).—This is a fine, large, beautiful species, with numerous small *red* fruit in the autumn, and loaded with dense clusters of sweet-scented white flowers early in the season. Supposed to be a hybrid between the common thorn and the Azarole.

C. punctata (Dotted-fruited Thorn).—A very desirable kind from North-west America, where the native Indians make wedges of it to split other wood with. There are three other forms of it, which were got from seeds in this country, one of which has *yellow* fruit, and another with *purplish* large fruit, and an upright way of growing, which they call *fastigiate*; all four have a fine appearance in the autumn.

C. glandulosa (The Glandular Thorn).—Native of North America—from Canada to the Rocky Mountains, with large *red* fruit; very spiny, and a dense bushy way of growth. Of all the American thorns, it is the best to form hedges with.

C. crus-galli (The Cock-spur Thorn).—Every one knows the Cock-spur thorn, or ought to know it; the spines are long, and curved backwards a little like a cock-spur, hence the name. It is a healthy-looking tree, owing to the smooth dark-green shining leaves, which are not cut up into lobes like many of them, but only a little notched on the edges. In good land and warm situations, it holds the leaves on till very late in the winter; the fruit, which is of a *dark red* colour, hangs also very late. It is one of the American thorns, and one of their very best.

C. Douglasii (Douglas's Thorn).—Poor Douglas! the gardeners never look on your namesake without regretting your unfortunate end. The little Primwort, which also commemorates your name, and which you found in bloom on the Rocky Mountains, with a wreath of snow for a mantle, we shall never forget. I wish I had noticed this fine and very distinct thorn sooner, as I can never write about my brave countryman without depressing the spirits. The fruit is small, *purplish*, and ripe in August. The leaves are the thickest or most leathery of all the thorns. It is one of the latest to come into leaf, and they fall off early—fit emblems of its discoverer's short appearance on this stage.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

VENTILATION AND COLLATERAL MATTERS.—Various inquiries having been made, I shall in a random manner throw a few ideas together upon the subject. Ventilation is the act of getting rid of noxious vapours, expelling impure air, and supplying their place with those which are pure. According to the knowledge or skill of the operator, this act will be followed by buoyant health and luxuriance, or attended with danger and ruin. The air long looked upon by our forefathers as a simple element of nature, is now recognised as a compound body, consisting chiefly of nitrogen and oxygen,—79 parts of the former and 21 parts of the latter, with varying proportions of carbonic acid gas and water in a state of vapour—the former from one-five-hundredth to one-thousandth part, and the latter, on a rough calculation, about one part in a hundred, but varying in proportion, according to the temperature and the dry or moist situations over which the air is placed. Invisible, elastic, inodorous, and tasteless, air is the great vehicle for the transmission of light and sound, the wafting of odours, and the diffusing of contagious malaria. The chief changes experienced are owing to heat, moisture, motion, and light. Though invisible, the air possesses the usual properties of matter, such as compressibility, weight, &c., and is, like other material objects, influenced by chemical action. It may well be considered the great laboratory in which are conducted the various processes of organic existence, be that existence animal or vegetable. The state of the air, therefore—its changes, its heat, its elasticity, its dryness, its comparative freedom from, or its being loaded with other substances, either in a gaseous, aeriform, or a vapourised state, its brisk breezy action, or its stillness and repose—must ever exercise a favourable or unfavourable influence upon the phenomena of life. In a greater or lesser degree, these matters must be considered, before intelligent people, like our inquiring friends, can resort to the processes of ventilation in such a manner as to feel the satisfaction in their own minds that they *are* doing what is right. In this, though sometimes attended with disappointments, consists the superior pleasure in conducting operations upon an understood well-defined principle, over that enjoyed in working merely by routine, and conducting experiments in the dark and at hap-hazard. In the one case, our chart may deceive us and we may mistake its teaching; in the other, we are groping our way without chart or compass at all. One striking feature of THE COTTAGE GARDENER is, not merely to expatiate upon the modes as to the *hows*, but to give the reasons as to the *whys*.

Of all other classes none are more indebted to the diffusion of cheap knowledge and benevolence of feeling combined than the young gardeners of the present day. Even when the ventilation of their plants and forcing-houses was deemed of such import, that in changeable weather, in order *needlessly* to keep them at a given degree, they were under the necessity of jumping about like lamplighters, abridging or enlarging the quantity of air, just as the sun was covered by, or had emerged from, a cloud. There was so *little*, nay so much of *no* attention at all to the securing a pure air in the miserable hovels in which they were often lodged, that the wonder is, *not* that gardeners as they became old were the victims of decrepitude and rheumatism, *but* that after passing through such ordeals they should ever be old at all—a consummation which when it did take place, after being situated in such circumstances, was generally owing to the pure air and invigorating exercises of the day neutralising, to a certain extent, the baneful influences of the dark, murky, confined receptacles in which they alike lived and slept. Owing, as we have seen, to the diffusion of cheap knowledge, combined with the spread of beneficence,—owing to the practical recognition of the principle, that a man cannot live for himself, but that his happiness must be identified with the happiness of others,—the highest and noblest of our aristocracy think it nought beneath them to investigate the means of health in the abodes of their humblest dependants; and thus the miserable lean-to *bothies* in gardens are giving place to airy and roomy structures, and means are afforded

by which the men may take care of their own health as well as that of the plants committed to their charge. Causes enough for grumbling there may yet be; for any body may find these if they like the mood of mind that is always on the look-out for them; yet contrasting the position of young gardeners *now*,—their comfortable rooms and their access to books,—with the discomfort, privations, and self-sacrifices, with which many of their older brethren, such as some of those who write in these pages, had to contend; I should not think of enrolling them in the first ranks of that worthy class who "are prosecuting knowledge under difficulties."

This seeming digression will not be without its use, if young gardeners are led to study their own physical nature, and the necessity of pure air for the possession of health; and if even a very few of those gentlemen who patronise the cottager, if they had not done so before, would examine the condition of the lodgings they provide for their gardeners and assistants. Once show that you are interested in the importance of their breathing a pure uncontaminated air in their own rooms, and gardeners, young or old, who—with all their faults, are a reflecting class—will so act, that our correspondents will not have reason to complain, as some have done of late, that their plants are covered with mildew owing to a stagnant atmosphere; or that the leaves of others are parboiled with sun and collected vapour combined, because the gardener will not move a sash, let the weather be what it will, until a certain hour of the morning. Let it not be forgotten, however, that under the most careful treatment allowance for failures must be made. Ventilation is a ticklish matter, especially in winter, and all the more so when, as in small places, plants of very dissimilar habits are collected together; and the more especially if some are intended to be *grown* and others to enjoy their season of *rest*. Excess of caution in one direction often leads to an opposite evil: you may fly from stagnant moist air to an air, whether hot or cold, so dry that it desiccates the plants by robbing them of their moisture, and then their dry shrivelled appearance becomes a matter of astonishment!

A first principle to be observed in all attempts at ventilating plant-houses, is the securing a much lower temperature at night than during the day; the regulating of temperature not so much by a fixed scale, as by the presence or absence of light. Whatever time men may feed, the assimilating processes are carried on chiefly during the repose of night, but in plants, the assimilating of solid matter to their substance can only take place during the day. Hence the importance of having the greatest degree of expansion by heat counteracted by the assimilating process in sun light. Thus only can firm sturdy growth be secured. The expansion of the vegetable tissues at night, is mere lengthening out of what the plant contained or absorbed, without the addition of solid matter. Hence, in all cases, but especially where anything like forcing is attempted, the superiority of the modern practice of having a low temperature at night over that which prevailed only a few years ago, when the injury which would have taken place from the unnatural practice of keeping strong fires and close houses at night, was only counteracted by admitting large quantities of air during the day, so as to allow a rise of only five or ten degrees at most,—while now by maintaining a low temperature at night, we think nothing of a rise in sunshine of 20°, and more. One advantage of this system is that it is the cheapest; a second feature is, that even for tender plants a few visits to the ventilating openings during the day will be sufficient; and there will not be the untimely wearing of shoes, and an ever and anon rattling of sashes or ventilators; and third, as it is the most natural, so it is the most successful. The plant requires repose at night, and the laying up a fresh store of oxygen: present it with the stimulus of heat at night, and then so far become a follower of nature as to allow your house to rise pretty well with the sun during the day, and the excitability of the plant will become exhausted, and disappointment will dash your hopes, even when you thought they were upon the point of realisation. From this cause, and others to be mentioned, I have seen flowers dropping when their full expansion was expected; and grapes not only red when they were expected to be black, but even not ripe so soon as those which scarcely received any assistance from fire-heat at all.

R. FISH.

(To be continued.)

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

ORCHIDS THAT THRIVE BEST IN POTS.

WHEN we commenced writing about the treatment of these singular and interesting plants, we proposed to divide them into three sections:—First, such as thrive best in baskets; second, such as thrive best on blocks; and, lastly, such as thrive best in pots. The two former we have already presented to our readers, and we now proceed to the third and last section. We shall, in this section, follow the same plan of selecting only such as are from some desirable quality really worth growing. Cultivators, especially beginners, should pay especial attention to this point, and for this reason principally, that it costs no more—either of heat, moisture, or attention—to grow a good fine species, than it does an indifferent, or merely botanical, or worthless kind. Hence, in any collection, when an unknown, newly-imported, or even known species flowers, and is not handsome, sweet-scented, or possessed of some other interesting quality, let it either be thrown away at once, or sent to some botanic garden, to be kept for the purposes of science only.

When purchasing orchids, buy nothing but what is really worth growing, and then the collection so selected will always be interesting and increasing in value. As far as lies in our power, or knowledge, THE COTTAGE GARDENER and THE COTTAGE GARDENERS' DICTIONARY shall only mention, or contain, such orchids as answer that description; and such as ought to be in every collection that has any pretension to rank as one.

ANGULOA CLOWESII (Mr. Clowes's); Columbia. — Sepals and petals clear and bright pale yellow; lip pure white; flowers large, cup-shaped, and very handsome. A noble plant. 42s.

A. RUCKERII (Mr. Rucker's); Columbia. — Sepals and petals rich brownish orange; lip greenish yellow; flowers very large. A handsome species. 42s.

A. SUPERBA (Superb A.); Peru.—Flowers of a rich chocolate red, blotched with dull purple; scape short and few-flowered. Very scarce—not to be purchased at present.

A. UNIFLORA (Single Flowered A.); Columbia. — Flowers white; lip tinged with yellow. The flowers have a very agreeable perfume. 42s.

Culture.—This very handsome small tribe of orchids are all well worth every care and attention of the cultivator; they are large strong-growing plants, and therefore require, when fully grown, large pots. A compost of rough fibrous peat and half-decayed leaves, with plenty of drainage, will grow them well. Being natives of the temperate regions of South America, they do not require the hottest part of the house, yet they must have, when growing, a warmer temperature than the Mexican house; the cooler end of the Indian house will be more suitable. When growing they require a liberal supply

of water until the pseudo-bulbs are fully formed, when the quantity must be gradually lessened. This growing season ought to be completed by the middle of September, and then a season of rest induced till February by keeping them moderately dry and cool. They may then be potted and placed in a warmer house, and a small quantity of water given them till they have half made their shoots, and then have a fuller supply of water. The flowers appear in June or July.

ANŒTOCHILUS SETACEUS (Fringe-flowered A.); Ceylon. We have already described this beautiful plant under the head "Plants that require peculiar treatment," and we refer our readers to that account in a former number. We need only repeat here, that it thrives best in a pot well drained, and filled with sandy peat, covered with green moss, and a bell-glass placed over the whole, within the rim of the pot. As the flowers are not very showy, the beauty of the plant being in its velvety green leaves, tinged with copper, and curiously covered with golden net-work; in order to preserve the leaves in their beauty, and to encourage them to produce fresh shoots and new leaves before the old ones fade, it is advisable to nip off the flower-stem as soon almost as it appears.

ARUNDINA BAMBUSIFOLIA (Bambusa-leaved A.); Nepaul.—Sepals and petals rosy pink; the lip is of a rich crimson purple. This is a very elegant plant, with numerous slender stems, two feet high, and narrow bright-green leaves. 84s.

A. DENSA (Dense-flowered A.); Sincapore.—Sepals and petals deep rose colour; lip dark pink, streaked with yellow, with a spot at the end of orange crimson. It is very fragrant. 63s.

Culture.—These two beautiful plants being natives of India, require as high a temperature as the other natives of that region. They should be potted in fibrous peat, with a small portion of half-rotten beech or oak leaves mixed amongst it. As the leaves do not fall off, they should not be allowed to become thoroughly dry, even in the season of rest; but when growing, a liberal supply should be given them. Occasionally, a dose of liquid-manure during summer would be serviceable; in autumn and winter, water should be given more sparingly.

BLETIA CAMPANULATA (Bell-flowered B.); Peru and St. Domingo.—Flowers deep purple, with a white centre. The finest of the genus as now constituted. The flowers are large and handsome. 25s.

B. HYACINTHINA (Hyacinth-like B.); China.—Sepals and petals rosy purple; lip lighter rose, blotched with deep crimson. Very handsome, and a dwarf grower. 10s. 6d.

B. SHEPPERDII (Mr. Shepperd's); Jamaica.—Sepals and petals dark purple; lip the same colour, but marked down the centre with long yellow plaits. This is said to be only a large-flowered dark-coloured variety of *B. verecunda*. It is a beautiful plant, lasting a long time in bloom. 10s. 6d.

Culture.—Bletias are all terrestrial, that is, growing on the ground in their native wilds. This term is used in opposition to epiphytal, or growing on trees. When we receive them from their native country the roots show that they grow in strong loam, portions of which frequently adhere to the mass of bulbs; but in our artificial mode of culture, if grown in the same kind of soil, they often perish through a too great supply of water. It is safer to use the following compost:—Light fibrous loam, turfy peat, and half-decayed leaves, mixed roughly together, and not pressed down into the pots too hard. The pots should be well drained, and when the plants are growing a moderate supply of water should be given, but when at rest it should be withheld entirely. The season of potting is the month of February. The pots containing the bulbs at rest should be brought out and placed on the potting bench, the compost having previously been warmed and moderately dried. Turn the pots upside down, and strike them gently on the edge of the bench. Shake off all the old soil from the batch of bulbs, and put them into the new pot nearly filled with compost; let the bulbs be just covered and no more; give a gentle watering, and set them in a house very moderately heated, or place them near the glass in the coldest part of the orchid house. They will not need any more water till the shoots appear, and then a little more may be given. Increase the quantity as the plants advance, and the flower-stems will soon appear. Whilst the new leaves and flowers are advancing in growth is the time when they require the greatest supply of nourishment in the shape of water. They should then have plenty of air, and be fully exposed to light. After the new bulbs are fully formed, the leaves will begin to show symptoms of ripeness, by changing to a yellowish hue. Very little water should then be given, and the pots removed to a cool house, or even a cold pit, if that state occurs as early as August. Here they may remain till frosty nights occur, when they should be brought into a dry, cool house; a warm greenhouse would answer well. Keep them in a state of rest till February, if possible, and then repot as before. This treatment will suit all terrestrial orchids that are deciduous, that is, that lose their leaves in winter. There are terrestrials that do not, and when we come to write about them we shall mention the winter treatment they require, which is considerably different to the method described for *Bletias*, and other deciduous terrestrials.

BRASSIA BRACHIATA (Opposite-branched B.), syn. *B. Wrayæ;* Guatimala.—Sepals and petals rather long and narrow, of a yellowish green, blotched with brown; lip broad and yellow, tinged with green and blotched with brown. A good species. 21s.

B. CAUDATA (Long-tailed B.); West Indies.—Sepals and petals yellow, barred with brown. They are from four to six inches long, and when the plant is large and healthy it produces numerous drooping spikes eighteen inches long, and numerously flowered. In that state it is graceful and handsome; lip broad and yellow, spotted with greenish brown. 21s.

B. LANCEANA (Mr. Lance's); Demerara.—Flowers yellowish green, spotted with brown, and very fragrant. Found by Mr. Lance growing on trees in a very hot locality. A handsome species. 21s.

B. MACULATA (Spotted B.); Jamaica.—Sepals and petals pale greenish yellow, blotched with reddish brown; lip white, spotted with purple. This is, probably, one of the oldest orchids that we have in our stoves, being introduced more than 40 years ago. It is a free grower and abundant bloomer, and well worth cultivating. 15s.

B. VERRUCOSA (Warty B.); Guatimala.—Sepals and petals pale green, barred with light brown; the lip is white, covered here and there with green warts, whence its name. The flowers are produced on stems frequently more than two feet long. It is a very pleasing variety. 31s. 6d.

Culture.—These plants require a varied treatment. Such as come from Guatimala do well in the Mexican or cooler house, but those that are natives of the warmer climates of Jamaica and Demerara should be grown in the Indian house. They do well in rough pieces of turfy peat, well drained, and require freely watering when growing, but very little when in a state of rest.

T. APPLEBY.

FLORISTS' FLOWERS.

DRIP IN FRAMES AND PITS.—There is, probably, no cause so injurious in its effects, especially at this time of the year, as drip in plant habitations, but more especially in cold frames and pits. Great care must be taken both to prevent it and, when it takes place,

to neutralise its almost murderous effects. Various schemes have been devised for the purpose, such, for instance, as gutters cut in the rafters and ribs of the lights, to convey the accumulated drops to a front pipe, and by this to be conveyed away outside; but the grand preventive is good glazing, and such an inclination of the lights as will send the condensed water off quickly, before it has time to collect into drops. If, therefore, the drip is observed to fall upon the plants, let the glazing be carefully examined and repaired; and the elevation, or angle of the glass, raised to the carrying-off pitch. Admission of air, on every favourable day, will dry up the drip, and help to cure the evil if it has occurred. T. Appleby.

THE KITCHEN-GARDEN.

Forcing Asparagus, &c.—Especial care must be taken in the forcing of asparagus at the present season, so that the shoots may be produced large and of a good colour. At first, as previously recommended, a very moderate heat must be applied at bottom, liberal airings should be given, and tepid water applied when required. Successional beds should be made to keep up a good supply. Fresh roots, also, of *sea-kale* and *rhubarb* should be taken up carefully and added to the forcing stock.

French Bean.—Those who have any convenience for forcing this excellent vegetable, should at this season adopt a careful system of potting. Our plan for the short dark days' culture, is to form a hillock in the pot and plant round it, as we find this a good preventive against shanking.

Mushroom-beds. — Make these in succession by placing a good portion of holding loam amongst the well-selected stable dung, &c., well incorporating it together by frequent turnings, until quite ready to form the bed, which should be well trodden and rammed firmly down, and spawned and cased while it maintains a moderate heat. If the mushroom-beds are made in a warm close structure, or where a little warmth can be commanded by hot water pipes or flues, no coverings need be added to the beds, the mushrooms will have more substance, and be produced short-legged, firm, and weighty, and altogether of good quality. Where it is necessary to cover with litter, it is better not to make use of much hay, on account of its tendency to make the mushrooms spindle. When we find it needful to cover, we like a mixture of soft mulchy straw litter, in the proportions of about two-thirds of this to one of hay, well shaken and incorporated together, taking care that all dust and short mulch is well shaken out of it, and never allowing it to lie too long without turning, but, at the same time, keeping the surface of the bed clear from short mulch. When a mushroom-bed becomes so cold that the spawn seems tardy in running, the best plan to make a safe and speedy movement is to take a stake, bore a row of holes through the middle of it, and, with a watering-pot, pour scalding-hot water into each hole quickly, and stop it in immediately with a wad of soft mulch, cover down the bed at once with litter, and water it with hot water; a genial heat will at once be established, the spawn will run kindly and strong, and an abundance of mushrooms will soon be the result. We, also, always water the surface of our beds with boiling water as soon as the mushrooms begin to show, which is a safe and sure remedy for clearing all wood-lice, slugs, and other troublesome pests.

Keep in mind at all seasons the collecting together of plenty of half-dried fermenting materials for making beds in succession; but wet, sour materials will not answer for mushroom-bed making. Everything that is suitable for mixing for fermenting purposes, should now be collected, and be kept turned often, and well incorporated together, so as to be in readiness for the many purposes for which it is likely soon to be required.

Sea-kale.—If a few roots at a time have been taken up and placed in the mushroom-house, cellar, close shed, room, or other convenient situation, placed in boxes, &c., tepid water should be applied occasionally, and a succession of roots placed in. Those who have not such conveniencies may cover the crowns, where they are growing out of doors, with three or four inches of fine cinder ashes, or charred dust, and then place pots or boxes over a small space at a time, placing about them a sufficiency of fermenting materials to command only a moderate warmth to start the growth at first, and increasing the warmth a little afterwards by adding more materials. Care should be taken not to hasten it too much, or the kale will be produced of a bad quality, weakly, and possibly cankered. There is no plan for producing good sea-kale in succession for the next two months equal to that of taking up the roots carefully, and placing them, as we have previously recommended, in boxes, pots, &c., inside a mushroom-house, or other close place; of course it would not answer to have them placed where light and air can to any extent get at them. We have produced excellent sea-kale in boxes at the back of pine stoves, early vineries, and such places, by having roughly-made covers to the boxes; and great indeed is the saving of trouble and expense by this practice in the dead of winter, when a regular uniform heat by fermenting materials placed round the roots out of doors is scarcely to be obtained. James Barnes.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

There is in our neighbourhood one old woman who is a picture of the olden times, and gladdens my eyes and heart too, every time I see her, for she is in every way what an English cottager ought to be. She is a widow, having lost her husband suddenly many years ago, through an awful accident; and she has since lived quietly and contentedly close to the scene of her painful bereavement, and near to those who know and respect her, and aid her occasionally in her advancing years. Her little cottage stands alone in a large piece of ground, half field, half garden. It is the property of a very neglectful landlord, and is a sad tumble-down place, for it is all that remains of what was once two tenements, and the black relics of a fire place, and other ruinous appearances on the outside give an air of extreme desolation to the little dwelling. Although there are many cottages very close to the field in which it stands, yet it looks so lonely and so sad, that I never see it without thinking of "a lodge in a garden of cucumbers;" and on passing up the narrow path that leads from the wicket, a stranger would almost expect to find dirt and desolation within. But on opening the door a smiling scene appears. There sits the quiet widow, in her neat well mended dress, the very image of cleanliness and order. Her cottage and its old furniture are refreshing to the eye—her little work-table,

near the lattice, shows that her hands are usefully employed, and the Book that lies upon it proves that she well knows the Source from whence "all blessings flow." There she sits, in cheerful and blessed peace, a peace that Christians *only* know, and which many an inmate of lordly halls would sell "all that he hath to obtain." The pleased welcome and the sparkling eye seem to spring at once from the heart, and it is scarcely possible to visit Betty Wright in her tottering cottage without feeling that *the world* can offer nothing to compare with that which her thankful *contented* heart enjoys. Contentment—not the cold tranquility of a quiet temper, but the blessed influence of love to God, and simple trust in Him—is the secret of exquisite peace.

Poor old Betty Wright's weekly receipts consist of eighteenpence and a loaf of bread. A kind friend has for some years paid her rent; and with these possessions and this liberality she considers herself rich and happy. Amongst the poor indeed, it *is* a state of ease and comfort: the rent is always a heavy drag upon their little pittance, and when the parish relief to an individual amounts only to a loaf and a shilling (which is the highest allowance in our district, except in some special cases), nearly the whole of the money is swallowed up in that one expense, leaving literally not more than threepence per week to purchase firing, soap, and every article of clothing and food, except the allowance of bread. Betty's rent being paid, therefore enables her to purchase those few simple necessaries which under other circumstances she could not possibly enjoy.

It is indeed a pleasure to assist those who are neat and orderly in their habits, and who make the most of every thing that is given them. I have often heard poor people complain that *they* never get help from any one, as some of their neighbours do; and upon glancing round, I have scarcely wondered that such should be the case—dirt, confusion, and rags *need never* exist under any circumstances, and they are therefore very likely indeed to disgust and prevent the charitable from giving that which would be wasted or misused. But the neat and clean are always attractive and pleasing, however poor and suffering they may be; and I have made one very general remark, that among such, *complaining* is never heard: I do not remember, at this moment, one single instance of complaint proceeding from a clean and well ordered cottage, however poor its inhabitants might be. The grumbling and discontented are usually those who are idle, and dirty, and improvident, and who are consequently much poorer and more wretched than they need to be.

Betty Wright's example might benefit all classes, because, in fact, her happiness springs from the deepest and sweetest source; and neither the station nor abundance of the rich and great can in themselves produce it. The high and the low must alike slake their thirst at the "Well of Life," for no other spring can satisfy the cravings of an immortal spirit.

There is another old woman who greatly resembles Betty in cleanliness of person and in dress. She wears the same sort of warm red cloak, black bonnet, and checked apron; her shoes and stockings are equally clean and whole; but the countenance—how different! There is a sour, cross, ill-looking expression of face, a cast of features particularly unprepossessing, and a something about her which always reminds me of the "wicked fairy" that used to figure in the story books of my childish days. Mary T——, with all her natural cleanliness, has not the inward adorning of "a meek and quiet spirit." To use the words of a simple-hearted old man, who once lodged in her house, "She reads chapter after chapter of the Bible, ma'am, and then she shuts it up, and uses such shocking language, that I am afraid she is not like to get good from what she reads." Here is the secret of the difference between these two cottagers, and it is the secret of the difference between all who are happy—*really, scripturally* happy—and those who are not; and in either case, the countenance, as well as the words and actions, tells pretty truly what is the state of things within.

Cottage piety is so simple and beautiful, it is drawn so exclusively from the Word of God, and is so little coloured by the precepts of men, that it is sweetly refreshing to the mind, and gratifying to the taste and feelings. The language of the lowly Christian is so unaffectedly scriptural too, from studying chiefly the Book of Life, that it gives a dignity and almost grandeur to the simple truths he utters; and I have sometimes listened with astonishment to the conversation of a poor labourer, who might truly be said to know nothing *but* "Jesus Christ, and him crucified."

Let the humble peasant remember — let the cottage gardener remember — let *all* remember, of every class and station, that the only foundation of real "wisdom" is "the fear of the Lord." "A good understanding have *all* they that do thereafter."

Especially at this awful and eventful time, a close clinging of the heart to the *simple Word of God* is of the highest and deepest importance. The palace and the cottage *must* stand on the same rock, to breast successfully the waves and storms that assail them,—to stand safely amid the "fiery darts of the wicked one" that are *now* flying around. "The sword of the spirit" is a mighty weapon, even in a poor man's hand; and we have every encouragement to "hope to the end," in the exercise of persevering prayer. Did not the Lord cause the army of Sennacherib to "hear a rumour" and return to its own land, when the arm of man was powerless? and did He not promise to spare the guilty city, if ten righteous men only were found in it? Let this quicken and cheer on the lowliest believer, for who can tell how much help and blessing his individual prayers may bring upon the land!

ALLOTMENT FARMING FOR DECEMBER.

THE month of December is indeed a dull, gloomy, and inactive period as to this kind of business; but, as observed in last month's advice, something may be done preparatory to the coming spring, and accessary to the general and ultimate welfare of the whole.

Fencing, draining, and such-like operations tending to increase the quantity and quality of the produce, as well as to provide against trespass, are matters shamefully neglected by the majority of cottagers at least, and, we fear we may add, many amongst the allotment class. Somehow or other agricultural affairs would seem to be regarded with a totally different eye from those of a commercial character; prospective matters are little heeded beyond introducing manure and casting in the seed. How different the case with our manufacturing class! Show them where the introduction of new gearing, new wheels, &c., is needed, and that they will repay at a future period, and immediately it is carried out. And yet, after all, the land is more permanently honest in yielding a sure return than commercial affairs. The profits are certainly not so great, but they are less fluctuating. A man may introduce improvements at a vast expense into machinery, and by the time the fruition of his plans should take place, a commercial panic may ensue, and his "plant," or gearing, is obliged to stand still at a loss, or be worked at a loss. Not so, however, the man who has drained a piece of land hitherto unproductive in character; he is sure, come what times may, to reap the benefit of his exertions, for there is always a demand for agricultural produce at least; and although expensive and complicated farming systems may be and are worked to a loss, we have never yet known such occur with an industrious cottager, if placed on land at all adapted to cultural operations.

Let allotment men, then, take heart, and be sure to take a lesson from the busy in our towns. We do hope to hear of a greater amount of perseverance as to *extra* improvements of a permanent character.

DRAINING.—We can do no more than repeat what was urged before,—that where necessary, it be carried out immediately. Where gentlemen carry out an allotment system through benevolence of feeling, it is to be hoped that they will either take care that the general plot is most completely drained at the commencement—which is by far the best, or that means be taken as opportunities offer; for it is indeed in its own nature a landlord's question.

To those who are now projecting allotments we would say: select a site which has a liberal depth of soil; for of all the impediments to a liberal course of culture, a shallow soil is the most unconquerable to a labouring man. The ground should by all means be deep—not less than a foot, and, if possible, mellow in quality; for it is pitiable to see poor fellows fighting against wind and tide in endeavouring to

prepare a plot of stubborn clayey soil, in the month of March, for seeds, &c. The farmers *may* do with such soils on part of a farm, but the cottager can never succeed with them as he ought to do.

As advice peculiar to the season, we suggest that *the store roots* be well looked to. Many throw a little temporary covering over their *potatoes* at the getting-up time, in order to suffer their perspiration to pass away. Now, however, all fear that way is over, and the principal danger to be apprehended is from frost. Let all pits or bags therefore be now well sorted over, at least six inches deep. Seed potatoes which have been laying thinly on room floors should now be got together and piled in heaps, well protected all round. They will do exceedingly well in pits, if not introduced until the middle or end of November, by which time a real rest state has been induced, and the ground being cold, there is no inducement to sprout. As for mangold, Swedes, and such roots, they of course are either in some outhouse or piled up in a sharp ridge if out doors. When the latter is the case they should be thatched, for wet is the great enemy to be avoided. What keeps out the wet thoroughly will also keep out frost.

Most cottagers will now have a bed or two of *cabbage plants* pricked out, and perhaps a bed of *lettuces*, or a few *cauliflowers* in some snug corner. The latter should have some sticks thrown across, and an old mat or carpet at hand to cover them with. Until hard weather comes he may cause them to protect themselves by placing a few of his old pease sticks over them, and strewing thereon a little of the old pease haulm or straw. As for the cabbages, the best way is to let them get pretty well frozen, and then to put plenty of litter over them, to keep them in that state as long as possible.

Where the allotment man has a stock of the *colewarts*, which we have so often recommended,—that is to say, nice little fresh-hearted cabbages from a June sowing,—he would do well to bunch them and get them into market, where they ought to fetch a capital price. If it is desirable to keep them until February, they must be taken up and "heeled" quite close together. A small bed will thus hold hundreds of them; and a moderate amount of straw or litter will securely cover a vast quantity. This is a plan we have practised for years, and hope to continue it as long as we grow a colewort. By so doing the cottager may realize double profit; for in the event of a hard winter, such things will command very high prices in the neighbourhood of our best towns.

RHUBARB.—If any spare chimney-pots, old tubs, or large garden-pots are available, they should be placed over some of the best crowns of rhubarb before they are frozen; first taking the precaution to cover the crowns with some dry leaves or litter, sufficient to keep out frost. Soil may then be heaved round the sides of the vessels, and a wisp of hay or straw stuck in at the top. Thus managed, the produce will be three weeks earlier than by having it exposed. If the cottager keeps a cow, he may as well place some of his warm manure round the pots. This, however, he need not do until Christmas has fairly passed, as the roots bud very sulkily, and of course weakly, at too early a period. By the latter plan, there is no reason why good rhubarb should not be enjoyed from the end of January until it comes in naturally. This is so useful a root, and of such easy culture, that no poor man who has ground should be without it; and if he cannot produce an apple-tree, he can in this root find a very able substitute.

SHALLOTS AND GARLICK.—There is nothing like autumn planting for the shallot, which is very useful as a condiment in the poor man's diet. Choose a bed of soil of an open texture; throw up the alleys so as to raise the bed three inches; then apply a good coat of very rotten manure, and dig it in rather deep. The shallots are merely stuck in with the thumb and finger, for although near the surface, the frost never does them any injury beyond throwing them out; and this is easily avoided by shaking some littery stuff on the surface after planting, removing it clear away in the early part of February.

SWEDE TURNIPS FOR SPROUTS.—A mellow and rich bed of soil is well employed at this season in this way. Draw drills close together, and place some of the strongest Swedes *close* in the drills; then crumble the soil in the alleys, and cover them all over six inches deep with it. Cinder ashes or sawdust are capital materials, being more easily removed; for it is necessary to scrape the covering away from the crowns in the act of cutting. Thus may beautiful heads be cut in abundance from the beginning of February until the end of March; and which (being blanched of course) are, in our opinion, equal to the finest sea-kale. We might show how the cottager could now plant Swedes, onions, &c., for seed, but we are perfectly satisfied that, by a good course of culture of his other crops, it is far cheaper to buy what little seed he requires.

BROCOLI.—If any of these stand in the allotment, let the owner immediately lay them with their heads to the north. They will assuredly be much safer by this plan; and he may pile the soil close up to their very necks.

CELERY.—Give the celery one more earthing up when dry, if it will take it, and press the soil close to the stems.

THE COW.—The supply of refuse from the garden which has proved of so much use during the previous months, is now gone of course, and she will be thrown on to root-diet, in part, of some kind. The first roots to work up should be the crooked, deficient, and cankered carrots, parsnips, run Swedes, &c., &c. These should always be sorted from the rest when the crop is stored away. Oat straw is very good where obtainable; and those who are short of good hay had better purchase a little. If the hay has been badly got, it will be found good practice to sprinkle a little salt and water on it in the manger, and then strew a handful or two of sweet bran over it. We have known cows thus readily eat inferior hay, which otherwise would be rejected. Much care should be taken over the fodder: some people waste a great portion of it through neglect. Some cows are notorious for treading it under foot; and the best way is to feed little and often. Another point of good cow management necessary during the winter months, is to be sure and keep a bucket of water in the cow-house. This placed there every afternoon may be offered to the beast at raking-up time, when the chill will be off it. It must be remembered that in bad weather the cow has not the same means of getting access to water as in summer. Cows generally contrive to make known their wants, whether as to meat or drink, by what is termed a "hasking" cough; which frequently denotes some want.

Cleanliness is most important with this animal, both in its own body and in the stall. All cow-houses should be cleaned out every morning at least, and the manger kept particularly clean. If the cow begins rubbing against a tree or post the moment she is turned out, it is more than probable that her coat is foul and she feels uneasy.

It is very capital practice for cottagers to eke out their limited diet by means of mashes. We would have one given every evening before going to bed. We have been in the habit of putting a good pinch or two of salt in the water, the mash being composed of bran, with about two moderate handsful of linseed meal. This may be given instead of the clean water, for which in this case there will be no occasion.

There is a great plague with the cottager's cow at times in getting her to go away to pasture in the morning. Some cottagers' wives are very fond of giving the cow potato peelings, or other nick-nacks, near the door or at the gate or hatch. This is foolish policy. We have known cows thus treated which would not go out to pasture, although the latter was close to their heels, but would hang constantly about the hatch. These peelings, or any other dainties, should be reserved for stall work; and we would always give the best food in the evening, and a little dry food to go through the night with. They are thus prepared for moist food again; and if care is taken that they get nothing by hand, except in the manger, they will soon be cured of the bad habits alluded to. Those who rear their own cows should begin thus systematically with the calf itself.

THE APIARIAN'S CALENDAR.—DECEMBER.

By J. H. Payne, Esq., Author of "The Apiarian's Guide."

THOSE persons who have been so fortunate in this untoward season as to obtain a few glasses of honey from their bees, must now look well to their stocks, and, by judicious

feeding, get them up to twenty pounds, at least, if it has not been already done. I would very strongly recommend the food being supplied at the *top* of the hive; and should the bees be in a hive that has not a hole in the top, with a sharp knife make one forthwith, for the danger as well as the inconvenience of feeding at the bottom, and more especially at this season, is very great.

TITMOUSE (Parus Major).—This sad enemy must now be looked sharply after, for it is already beginning the work of destruction; the life even of a single bee, and more especially at this time of the year, is of importance.

VENTILATION.—It will be advisable where bees are in boxes, to see that they are well ventilated. If in Mr. Taylor's amateur's bar hive, I would recommend the feeding-pan being allowed to remain on during the winter,—say till the end of March,—and one of the zinc slides of the hive taken out; and if in any other kind of box, let a bell-glass be placed over the opening at the top, on the inside of which the vapour of the hive will condense, and so pass off. "Perhaps," says Mr. Taylor, "there is nothing more prejudicial than the moisture often engendered in hives at this time, particularly after frost and in certain states of the atmosphere: it accumulates on the top and sides, moulding and rendering offensive the combs, and producing disease amongst the bees. For this reason, hives with flat roofs have sometimes been objected to, and perhaps justly, when no provision is made for ventilation." Gelieu obviated the evil by placing caps or small hives over the stocks, the moisture ascending evaporated through the opening. "I have," says Mr. Taylor, "tried different expedients, and have found nothing better than the practice of condensing the vapour of the hive as much as possible, and conveying it away." (See "Taylor's Bee-keeper's Manual," page 149, fourth edition, where a figure of a condenser is given.) I would strongly recommend that particular attention be given to this little matter by those whose bees are in boxes; for want of it many excellent stocks are lost, or become so depopulated as scarcely ever to recover.

In a letter from a gentleman at Dublin, of the first of last month, he tells me that he has just concluded feeding two stocks of this year with about thirty-seven pounds of honey divided between them, which they have eagerly appropriated. One of these stocks is a *second* swarm, to which has been added about a pound and half of bees, but so amazingly fertile is the queen, that the colony is highly powerful, and breeding is now going on rapidly; the quantity of pollen brought in is not only enormous, but seems to be daily increasing in amount. Another proof this, that a stock, be it ever so weak, and at almost any time of the year, may, with very little attention, be made strong in numbers and rich in store.

FLOOR-BOARDS.—It will be necessary to clean the floor-boards frequently with a dry bush, but more especially so upon the breaking-up of a frost, for it is then that dampness, especially in boxes, is most to be feared.

FEEDING ARTIFICIAL STOCKS.

YOUR correspondent, "A Most Edified Reader," in the 111th number of THE COTTAGE GARDENER, has made some suggestions for the feeding of artificial stocks according to my plan, which seem to call for a few remarks from me. He is evidently a *thinker*, and as such must make a good apiarian. But I am sorry to be obliged to differ from him altogether in his proposed manner of feeding his artificial stocks in future. His suggestions had long ago presented themselves to my own mind, but there then appeared, as there still do appear to me, several grave objections to them, which I am anxious to state explicitly, as suggestive of *caution* to those who may be disposed to agree with his *primâ facie just* observations, and to follow his advice.

My objections are two-fold: 1st. That in no case, probably, would more than a *quarter, or a third-part* at most, of the "*eight or nine pounds of honey*" which he proposes to give "*after the first three or four days*" of the hive's establishment, really find its way into the cells of the hive; and 2ndly. That instead of this surviving the winter consumption of food, and being the *last* of the store to remain in the hive, it would be among the *first* to disappear. These objections I will undertake to prove.

I. It is well known to the scientific apiarian that bees, except when in the midst of vigorous breeding, do not make more comb than they are likely to want for the immediate purpose of storing honey; or, in other words, *comb-making proceeds in exact proportion to the abundance of food, or the wants of the queen-mother.* In the instance of a stock artificially formed in the early part of August—at which time breeding goes on more or less actively in all good hives—every constructed cell which is not filled with food is quickly seized upon by the queen as the depository of an egg (and every cell, as I shall presently show, not occupied by an egg, is more or less filled with honey, *i.e.*, the provided mixture); now such a cell cannot be free for the reception of food for *three weeks* to come, and as the queen sometimes (especially if she be a young and vigorous mother) lays very considerably at this season, a large breadth of comb will be thus occupied as fast as it can be made. Although, therefore, it be true, as your correspondent stated, that comb-making at first, in this instance, is the order of the day, while but little food is stored, he must not suppose that the combs already made at the end of three or four days (and they are not many) are, therefore, ready to receive his eight or nine pounds of honey. He supplies the bees with it, however, who thankfully accept it; but where is it to be stored? They do not hesitate, but set to work, more diligently than ever, wax-elaborating, for the purpose of constructing a receptacle for it; and in this process a great part of it is necessarily consumed—for it cannot be supposed that the bees will prefer to use the mixture already stored (for some *will* be stored) from foresight of its ill-capacity for preservation.

In confirmation of the above, I may mention my astonishment this autumn to find how small was the *weight* gained during the most liberal supply of food. "Where *does* it all go to?" I have often asked myself. Doubtless the answer is,—in the process of comb-making; for the consumption of food itself, *as such*, cannot be very great at any time. On referring to my note-book, I find that one of my lately-formed artificial stocks indicated a weight of only *sixteen pounds net* (*i.e.*, hive deducted) as the result of a supply of *forty-five pounds, at least*, of prepared food,* and this, too, composed of a greater amount of saccharine matter than is usual in such food!! Now if, as Huber states, sugar is more productive of wax than honey is, what becomes of your correspondent's generous supply of eight or nine pounds? If my experience as detailed above be generally true, not more than *two or three* pounds, at the outside, is likely to find its way among the permanent stores of the hive!

Again, supposing the stock was formed *late in the season*, when little or no brood is being reared, A. M. E. R.'s honey becomes absorbed in the same manner. Perhaps a little more *may* be laid by than in the former case (though I very much doubt it), because they make no more comb than they want; and in this case they store as fast as they build, and build as fast as they store. If A. M. E. R. could examine his stock three or four days after its establishment, he would find about three or four combs in different stages of advancement, every cell of which (except those which were not completed) would be found more or less full of the mixture with which he had supplied them, some, perhaps, being near ceiling over. The honey afterwards given must then take its chance with the other food, part being stored away, but by far the greater portion consumed in wax-making. A. M. E. R. seems to argue that in every case the bees for the first few days would build nothing but comb: they are, however, far too sagacious to do that; they never waste their substance in expensive house building, leaving it in uncertainty whether their new granaries shall be filled or no—like many human beings, who claim superiority to them as being endowed with reason. I use the expression "*expensive*" advisedly, for I reckon that not far short of fifty pounds of honey (or, at least, prepared food) is required to elaborate *one pound of wax*—so costly is this substance, for which only about 1s. 6d. can be obtained in the market!!

II. In the next place, I affirm that *the honey or mixture first stored is among the earliest consumed*; that is, *as soon as the bees have done comb-making, and have eaten the honey in the*

* Observe, I take no note of the honey which the bees collected all this time in the fields.

lls ; and this I will quickly show is an *unanswerable* whatever may be thought of the former. For t me ask, do the bees huddle together on the of cold weather but among the earliest built nich are generally the largest? Of this A. M. E. R. ily convince himself (or anybody else) if he will, ing this, turn up his new hives and examine them. they will remain for the next four or five months,— will commence the operations of the new year,—and course, they will first clear the combs of whatever may contain, as saving them the trouble and peril ; and, be it remembered, *these are the very combs A. M. E. R.'s honey has been stored.* I conclude, that it is well *at no time* to feed artificial stocks, cording to the plan recommended by me, on *pure* being both expensive and useless. The food ut should be of *a uniform quality ;* or, if otherwise, *proving in quality after the first fortnight's feeding.* E. R.'s objection to my plan—viz., that the surplus e the winter's consumption *might* be spoiled—will red if the stock be fed up to fifteen or sixteen nly, *net* weight, in October; for this will keep the till the following April or May (*according to the* t which time a similar mixture might be given rhaps a little less to their liking than the food in autumn, so that they may not be tempted to eat ference to their stores), in quantities of half a r week *at a time*, until it was evident that honey l. In this way very little, if any, of the autumn- mixture will survive the spring demand of the g brood. As to its *candying or spoiling* (unless, *rater* is a principal ingredient in its composition) in *cells*, I cannot imagine it, where honey itself so ould not spoil or candy in like manner.

rever, I am obliged to disapprove altogether of your adent's proposal in the *early* part of his communi- must do him the justice to say that the suggestions by him in the latter part of it are very valuable. in fact, partly anticipated me in a similar recom- on of my own, which I had already committed to me weeks ago, in the manuscript of a work on bee uent (suggestive of an improved and, in some novel system), which I hope to have shortly in the I would have transcribed it here but for the too gth of the passage, and the want of time. Suffice that I advise, in preference to converting a *super* or nto an artificial stock, the preservation of a *triplet* purpose, or, still better, of a *nadir* (on the *storifying* : the *triplet* as interfering less with the spoil of the ter, and the *nadir* (into which the swarm is *sure* o descend) because of the opportunity afforded to it onversion of the *old stock into a new colony, after the by excision of a third of its combs.* Being so treated ar, it might be preserved to an indefinite existence. *ollateral* system, on the other hand, I recommend box to be shifted to the right or left, and its place by an empty box, through which the bees shall o the open air. If plenty of additional room, in the bell-glasses or small supers, be supplied over the ve, the side box will be found generally full of *comb*, ed with *pollen*, and only a third full (or even less) ; for the bees always prefer to store over their main , whither they will transfer their stores from the when the weather is unfavourable to their moving oors and adding to their treasures. This hive will most valuable boon to the new colony of preserved o will require but a comparatively small supply of f food, while at the same time the bee-master's of honey will not be so greatly trespassed upon.

ding to A. M. E. R's plan, he would find that the uld consume a large quantity of the already-stored the combs (which remain after he has cut out his or of the prepared food with which he supplies replacing the removed combs; this they *will* be ure to do. A COUNTRY CURATE.

ENGLISH CAGE BIRDS.

THE SONG THRUSH.

INSESSORES DENTIROSTRES. MERULIDÆ.

Turdus musicus; Merula musica: The Throstle; The Thrush; Common Thrush; Garden Thrush; Mavis.

THIS is one of our most beautiful song birds; easily kept in confinement, and readily reared from the nest; its food consisting of berries, worms, and snails, and, indeed, insects of all kinds. It will also thrive on the paste of oatmeal alone. I always reared from the nest those I kept, which I did easily by feeding them on oatmeal paste, made pretty stiff, with an occasional worm or piece of meat, and at the same time giving them after feeding (which was usually about every half hour) a little water; this is best done by means of a syringe, which by gentle pressure allows a drop or two to trickle through the nozzle of the syringe into the bird's mouth, and which nozzle resembles pretty much the beak of its parent. It is a principal ingredient of success in the rearing of young birds to keep them exceedingly warm, and I used to do this by covering them either with wool or flannel, taking especial care to remove the dirt contained in the natural bag, by means of a pair of pincers, immediately that it is evacuated; and it is of importance that the plumage is not daubed or soiled by the paste, for if so, the birds will become sickly, and eventually will perish.

Young birds are very subject to *cramp;* this is often obviated by mixing with the prepared oatmeal paste a quantity of gritty matter, such as bruised old mortar, or road grit, which acts as a scour in their stomach, and when cramped will often relieve that state. The oatmeal paste should be made fresh every day, and in the heat of summer even twice a day, for if it becomes sour it will produce diarrhœa, and kill the nestlings in a short time. It is better if the oatmeal paste be made with milk instead of water—that containing much animal matter.

By rearing young birds from the nest, the following year you are sure to have them breeding, which, to a true lover of birds, is very desirable. When I kept them, mine bred every year; and I was much amused and delighted to watch the birds making their nest, and rearing their tender offspring. I supplied them with a quantity of moss, and having several fir-trees planted in the aviary, they provided themselves with a suitable position for their nursery. Both birds assist in building, but the female is most busy, and eventually completes it. After having laid the foundation, by dropping large pieces of moss on the branch of the fir-tree near to its stem, the bird then lowers itself in a squatting position, and with its feet scratches, as it were, the moss into something like regularity, at the same time partially spreading its wings as if to keep the moss within its grasp; it then moves in a circular direction, and weaves, as it were, with its feet again; and this it does until it has described a circle, pushing with its beak here and there a stray bit which its wings may not have encompassed; and thus in one day, as I have often observed, will it have diligently toiled to the completion of its nest, as far as the form and shape. On the following day, the lining the nest is the next process, which is done by the bird seeking out some muddy place, collecting the mud in its beak, and dropping it in the nest, then preparing to plaster it round the nest by turning itself round, describing the circles as before, and thus by its breast rubbing the mud against the rough interior of the mossy nest. This is re

peated till the nest is entirely lined with a thick coating of mud, which, when done, the bird dries by its own warmth, by sitting in the nest thus recently made for a day or two. Should it, however, happen that the mud is not sufficiently moist, or, as I have seen it occur, there has been no mud at all within its reach, but dried parched up earth, then the instinct of the bird prompts it to take in its beak this dried earth, and then to the fountain of water, into which it would dip the earth, and then deposit it in its nest, afterwards return to the fountain and have a thorough bath, making its breast feathers thoroughly wet, and then like a plasterer set to work, turning every now and then so as to complete the circle, and render its work round and smooth.

In the course of a few days four or five *eggs* are deposited, and the hen patiently sits about 14 days before hatching is completed. Should it rain during the process of incubation, the bird spreads out its wings, entirely covering the nest, so that the rain pours off the wings over the nest, and thus the little nurslings are kept from being wetted. She feeds them entirely on insects and worms, and, in their absence, with meat. Immediately after the food is put into their beak and swallowed, the little bird elevates its hinder part of the body and discharges the excretion in a membraneous bag, which the parent bird seizes in its bill, and flies off with to some distant spot. Both parents are engaged in feeding the young, and they appear to know which has been fed and which not, as I have patiently watched them by the hour feeding them one after the other in regular succession, so that I knew when the parent arrived at the nest whose turn it was next. While sitting on the nest my birds, which were always very tame, would let me stroke them on their head and back; but if I attempted to touch their eggs, would immediately peck my fingers, and that sharply, while they remained sitting on.

At one time, when I was looking at the hen thrush sitting on her nest, I fancied I saw something black move underneath its wing, and upon further inspection I found a hen bullfinch had deposited four of her eggs in the same nest as the thrush, and both were sitting together, hatching each their young, without any molestation on the part of mistress thrush. They both sat until they hatched, but the small birds were overpowered by the larger, and thus perished. It was, however, a curious coincidence that both should occupy the same nest. The bullfinch could, and did after, make a separate nest, which is mostly composed of short sticks.

After the first brood is reared, the mother bird then sets about another nest, going through the same process as the former one, and, if means be short, pulling the old nest to pieces to build the new one. She never resorted to the old one except to pull it to pieces, while the male bird took care to see after the first brood, and feed them until they could take care of themselves.

In the autumn, and even in winter, if there should happen to be a sunny bright day, the young birds would begin to sing, and in February and March would pour forth their melodious notes from morning till night; and often in the summer time, my parlour being lighted with gas and shining through the window, the thrush would continue his song till past midnight, and only seemed to cease when the shutters were closed and the light excluded. I have noticed the thrush would sing much louder and more frequently just before rain and during a gentle shower.

I have observed persons shade their birds when in cages from the sun, but in my aviary, as the sun took its circuit and shone on parts of the aviary in different places during the day, that all the birds, in the hottest days especially, were always sure to be lying in the sunshine with gaping mouths and outstretched limbs, and ruffled feathers; and till my children and others have hastened to me with such exclamations as, "Oh! the birds are dying; come and look." Instead of which, they were only enjoying themselves in the sunshine, and invariably removed themselves to that part where the sun was shining, if it left the spot they were enjoying a few moments before. W. RAYNER.

ROSES IN POTS.

IN compliance with your permission and wish that I should inform you of the mode adopted by me in growing ses in pots, as specimen plants, and for exhibition at our local shows in the months of May and June, I will begin by observing, that the method does *not* in principle differ from that so ably laid down by Mr. Beaton in a recent number, but simply so as regards little matters of detail in the difference of time recommended for the necessary operations of pruning, re-potting, &c.; and hope you will excuse my being somewhat lengthy in my observations, as I feel that omitting the most trifling operation will sometimes hazard the success of an undertaking.

My first consideration in growing "roses in pots" is to procure some pots that are well cleaned, or, what is better still, quite new; and may here observe, that 24's are a very convenient size to commence with. I then, at the commencement of November, proceed to Messrs. Paul, of Cheshunt. Having recommended them many customers, I presume in consequence and make, I believe, a somewhat unusual application to be allowed to select at once and take up such roses as I wish for the purpose,—a request which young Mr. Paul kindly accedes to, and accompanies me himself to assist in the selection. It is as well here to state, that experience shows me that worked roses are preferable, for pot purposes, to those grown on their own roots; and in consequence I select such as are dwarf standards only, and worked close to the collar, so that when the rose is potted the stem is scarcely visible. I also find that Tea, China, and Bourbon, or their hybrids, are better suited for forcing and pot plants than Noisette and Hybrid perpetuals,—the two last named class of roses growing to greater perfection in the open air. Amongst *Tea roses* I would recommend Saffrano, Devoniensis, Compte de Paris, Nephetos, and Princess Clementine as unrivalled. Mrs. Bosanquet, Duchess of Kent, with a few others amongst *Chinas;* Souvenir de Malmaison, Leveson Gower, and Dupetit Thouars amongst *Bourbons*. Of the above, Souvenir de Malmaison is unrivalled as a pot rose. Having selected my plants, I without loss of time, and before the roots have got dry, pot them (having first pruned the strong roots) in a mixture of old cow-dung, leaf-mould, silver sand, and yellow loam, in the following proportions of half yellow loam, and the rest, as regards the cow-dung, leaf-mould, and sand, in equal parts; but find that a greater proportion of loam may be added with advantage, should the rose to be potted happen to be a Bourbon or Hybrid perpetual.

My plants being potted—which operation is complete about this time,—I place them on ashes under a north wall in some sheltered part of the garden, until the frosts of November compel me to put them in cold pits, keeping them, since their being re-potted, as dry as I can to prevent growth, but not sufficiently so to cause the plants to flag or their roots to get quite dry. I then, about the commencement of December, prune all that I intend bringing into the greenhouse in the early part of January, for blooming in May and June, and stimulate them gently by applying water at a temperature a few degrees warmer than the atmosphere of the pit where they still are, so as when they are introduced into the greenhouse at the commencement of January, at a medium temperature of 45°, they are just beginning to push strongly.

About the commencement of February a little more heat is given, and weak liquid manure is applied about twice a-week, which is strengthened as the plants increase in vigour and have their buds well set. About this time syringing over head with lukewarm water, or steaming, may occasionally be had recourse to, as it tends to give strength to the plants, and keeps away the aphis and other enemies. Lastly; when the shoots are sufficiently long for the purpose, they are gently brought down to the sides of the pot, or staked to such places as they are intended to occupy, so as when the plants are ready for the show, these appliances may be removed, and the plant still preserve a round and uniform appearance.

I had almost forgotten to add, that it is necessary at all times when the temperature is at 50° or above, to give as much air as possible; and this may even be done when a gentle fire is going. J. R. S.

LECTION OF NEW AND CHOICE PICOTEES.

.—Heavy edged. L.—Light edged. Those not marked are intermediate.

RED EDGED.

	PER PAIR.
(Burroughes); extra. L.	5s. 0d.
(Edmonds); large and fine	5 0
ss of Sutherland (Burroughes); the finest class; took first class certificates at several ces, and the premier prize at Slough	10 6
(Youell); extra fine. L.	5 0
la (Widman); extra	3 6
Lind (Edmonds); very fine	3 6
John (Hepworth); a fine full flower; con- it	10 6
Burdett Coutts (Burroughes)	3 6
of Wales (Morris); a very extra-fine flower	10 6
Middleton (Jessop). H.	2 6
nus (Morris). H.	2 6
e (Hudson). H.	2 6

PURPLE EDGED.

yst (Matthews); extra fine. L.	5 0
Page (May); a fine full flower, and very stant. L.	7 6
nce (May); large and extra fine. H.	7 6
tine (Turner); small, but of extra fine lity. H.	5 0
site (Hudson); a very extra fine variety	5 0
H. E. Annesley (Kirtland); extra fine	5 0
(May); extra fine. L.	5 0
Harriet Moore (Turner); medium size, ge fine petal; smooth and constant; first is certificates at various places	10 6
a (Burroughes); extra pure white, delicately rgined with violet purple; first class certifi- at various places	7 6
Helen (Hepworth); a fine large constant rer	10 6
of the Village (Kirtland); extra large flower; and constant	5 0
e Albert (Morris); extra large, and con- nt. H.	7 6
a (Cox); very fine. L.	7 6
x (Kirtland); extra fine	5 0

ROSE AND SCARLET EDGED.

sa (Matthews). L.	3 6
Dacre (Garrat); extra fine. L.	5 0
Barnard (Barnard); very fine. L.	3 6
Osborne (Burroughes). H.	2 0
Trahar (Dickson); very fine. L.	5 0
e (May). H.	5 0
Victoria (Green). H.	5 0
(Headly); extra fine. H.	5 0

YELLOW PICOTEES.

e Harold (Wood)	2 6
of Gold; extra fine	5 0
emia (Barraud)	3 6
y Chief (May); extra	2 6
dia (May); an extra fine flower	7 6
e Bride (May); extra fine sort	2 6
ess Alice (Bragg); several first class certi- tes; extra fine	7 6
(Brock)	3 6
Victoria (Halfacre); extra	3 6
Victoria (Martin); a fine old variety	2 6
(Hoyle); extra fine	5 0

NATIVE WILD FLOWERS.

NOVEMBER.

(*Concluded from page* 119.)

yrium filix fœmina (the Lady Fern).—This, although the commonest, is one of the loveliest of our native ; and from the delicate and graceful appearance of utiful fronds it derives its becoming name of Lady Fern. Although sometimes to be met with on the heath and hill-side, the fragile foliage of this plant is only to be seen in its characteristic luxuriance and beauty in the sheltered recesses of the woods,—a fact with which Sir Walter Scott evinces an acquaintance in David Gellatley's song:—

> "Hie away, hie away,
> Over bank and over brae,—
> Where the copsewood is the greenest,
> Where the fountains glisten sheenest,
> *Where the Lady Fern grows strongest,*
> Where the morning dew lies longest,
> Where the black-cock sweetly sips it,
> Where the fairy latest trips it:
> Hie to haunts right seldom seen—
> Lovely, lonesome, cool and green;
> Over bank and over brae,
> Hie away, hie away."

There are several curious varieties of the Lady Fern.

A. fontanum (Smooth Rock Spleenwort).—Very rare, and apparently extinct in Britain.

Blechnum boreale (the Northern Hard-fern) is a singular plant, common on heaths; difficult to cultivate.

Botrychium lunaria (Moonwort).—An interesting species, often abundant in exposed pastures in Scotland. It is one of those magical plants which obtained celebrity with the herbalists of old, and was believed to "doo wonders" if gathered by lunar light.

Ceterach officinarum.—A curious and much cultivated fern, plentiful in limestone districts, although a rare plant in the northern part of our island.

Cistopteris fragilis (Brittle Bladder Fern).—An exceedingly delicate and beautiful species, often clothing the shady banks of our Scottish dells with a rich and ever-verdant foliage.

C. montana and *alpina* are both exceedingly rare.

Hymenophyllum Tunbridgense (Tunbridge Filmy-fern); *H. Wilsoni* (Scottish Filmy-fern).—Two very beautiful, and nearly allied, though quite distinct plants. They generally grow amongst mossy herbage in shady woods, and are in fine condition at the present season.

Isöetes lacustris (European Quillwort).—A northern aquatic frequenting the bottom of lakes; and, although not a true fern, deserving enumeration in the present list. The fructification is singularly concealed at the base of the leaves, its presence being indicated by a swelling.

Lastrea cristata (Crested Shield Fern).—A rare English species, found in Norfolk, Suffolk, and Notts.

L. filix-mas, or Male Fern, so named on account of its large and stately appearance.—It is common in woods. It has been reported to possess valuable medicinal properties.

L. oreopteris (Sweet Mountain Fern).—Plentiful on the mountain heaths and woods, especially in Scotland. The fresh fronds are said to emit a fragrance, when bruised, from the glands on their under surface.

L. rigida (Rigid Shield Fern).—A rare English fern, "covered with minute stalked glands."

L. spinulosa; L. dilatata.—Common in woods, &c. We refrain from here entering upon the discussion of the specific distinction of these two plants, believing, with high authorities, that "the conclusions to be drawn from a careful investigation of Spinulosa and its allies would be as various as the individuals who examine them."

L. thelypteris (the Marsh Fern) is a less equivocal species than the two last, and remarkable for its extensively creeping rhizome. It is rare.

Ophioglossum vulgatum, or Adder's Tongue (in allusion to the supposed resemblance of the spike to the tongue of a serpent.)—It is an interesting plant, not unlike the Botrychium. Rather rare.

Osmunda regalis (the Flowering Fern).—A very conspicuous plant, often cultivated in the open border. It is peculiarly abundant in the west of Scotland, sometimes attaining a height of more than eleven feet!

Pilularia globulifera, or Pillwort (from the pill-like fructification), is an aquatic, and an ally of the Isoetes.

Polypodium calcareum (the Rigid Polypody) is peculiar to limestone districts; and doubts have arisen as to its specific distinction from the following—cultivation having been stated to change their characters.

P. dryopteris, or Tender Polypody, is more plentiful, and abundant in Scotland, often growing in company with the Allosorus.

P. phegopteris, or Mountain Polypody, is a lover of the waterfall, and this fact forms a key to its successful cultivation.

Polypodium vulgare, or Common Polypody.—A very common plant, perhaps the most common of all ferns, growing on old walls, the decaying trunks of old trees, &c. The beautiful variety *Cambricum*, with its laciniated and crisped fronds, is a highly interesting object to the cultivator. *It* has been found wild in Wales and Ireland.

Polystichum lobatum.—Not unfrequent in woods.

P. aculeatum.

Polystichum lonchites (Alpine Shield Fern).—Truly an alpine plant, growing at a great elevation, and, indeed, "a very handsome northern fern." Under cultivation it rarely exhibits the stately beauty which characterizes it in its native haunts. Strange that the child of the mountain, exposed to the rough buffetings of the storm, should become dwarfed when conveyed to a warmer region.

Pteris aquilina (Common Brake or Feather Fern).—A large-growing plant, very common in hilly districts, and often used, both in its green state and when dried, as litter for farm stock. "The people in Scotland employ it as a vermifuge:" so say Hooker and Arnott.

Scolopendrium vulgare (Hart's Tongue).—Not of very common occurrence, but often in great profusion on wet shaded banks, especially by the sea-coast. It is easily cultivated.

Trichomanes radicans (Bristle Fern).—The most beautiful of all our native ferns, and very rare. It "has a habit very different from the rest of our ferns, and belongs to a group which abounds in the tropics." In the few places where it does occur it is observed to love moist and shady situations.

Woodsia hyperborea, and *W. ilvensis*.—Both very rare.

I may on a future occasion offer some remarks on the genera *Lycopodium* and *Equisetum*, which I find would occupy too much valuable space in THE COTTAGE GARDENER at the present time.

G. LAWSON, F. B. S., &c., *Edinburgh*.

TRANSFERRING BEES.

SOME years since on my first coming to reside in this place, I bought a hive of bees from a maltman, in whose garden it stood with others till the swarming season, and which I generally saw on my visits to that place (Snaith), about once a week; and on one occasion I observed *signs* of their approaching swarming (*the first swarm*). I went down the next day and saw the new colony issue about eleven o'clock. I had with me a box for their habitation. As usual, I had very soon the company of the neighbours to witness the stirring scene. The bees knit in a thorn hedge at the end of a wall; I placed the box over them, expecting they would be glad of such accommodation, but, as too frequently happens, they commenced returning to their old habitation. On examining for the cause, I found the queen on the ground under a piece of old bag, and about four or five of her subjects endeavouring to protect her.

I took her up and placed her by the box, into which she hastened, and the music changed, as did the bees in the selection of an abode.

Having then no place of my own proper for bees to stand, I left them, three miles from my residence, till August. Being at Peniston, nine miles from here, I was in company with two worthy gentlemen, one of whom an old bee-keeper, but now no more, the other, D——, Esq., a professional gentleman, when, as was usual with my late much esteemed acquaintance, the subject of bee management was brought forward in conversation. Mr. D. was regretting that he had had several fruitless attempts made during the season to stock a new Nutt's box, that the swarms would not stay when put in, and was up to that time untenanted. I inquired on what terms I should fill it with comb, honey, and bees, and on which we soon agreed; the next time I had occasion to visit the place, I went down to Snaith, brought away my box, *then quite full*, took it to Peniston; the day turning out exceedingly warm, through which I was much later at the place than I intended,—10 o'clock.

However, delay would only add fuel to the fire, so I went to work, found the box very damp and unfit for bees (the cause why it could not be earlier filled), cleaned it out, placed mine by the side of it, and with chisel, hammer, and saw, took my box to pieces, shortened the cross bars, which were too long for the Nutt's box, took the comb, bees, and honey, fitted the same into the new box, placed cross bars firmly in to keep all from descending to the bottom board, which might have interrupted the egress and ingress of the new inhabitants, and if not done them serious harm, would have caused them much labour; the box was then safely placed right way up in its proper situation, and the work of industry was speedily resumed.

Certainly, I never knew bees more angry, and I had several stings, but being prepared, none were *half so* painful as the sting of the nettle; and I was most annoyed by the excessive heat of the day. Mr. D. had the same colony in that box for three years. I am of opinion they died at last from neglect, in not being provided with something to keep out the damp in winter; these boxes generally being made too light in the substance.

I will now add, although differing with many who possibly have had more experience than myself, that I am of opinion feeding is *exceedingly* injudicious after the time they cease gathering their winter store, and more particularly with any *liquid substance*. I have tried most ways of feeding, but, as yet, have found nothing better for late feeding than good brown sugar. Let any one observe the size and weight of a working bee that has been partaking of a liquid food—it is sure to fly after it; its strength is nothing like what it was in the working season; it is too heavy to return to the hive—it drops, becomes paralysed, and must die. With a dry substance it may, and will, take what will support its nature, and share with many others it may come in contact with; but there is no depositing in cold weather, neither can combs be made till at a sufficiently warm temperature.

I read much about uniting too; and here again it can answer no good purpose after the working season is over; better far chance a small colony in their own abode than introduce them amongst strangers. I have ever, experimentally, found that much less honey will support them than your correspondents appear to think; only avoid inducing them to fly when the working season is over, by shading; and be sure to keep them from becoming damp in the winter season. A light and weak swarm thus attended to may come out in the spring better than one full of honey, which has been unceasingly disturbed during the winter season. You frequently, and I am sure very properly, say of plants, "Let them have a nap at the right season;" let me intreat you to say the same of the poor bees, so often *persecuted* with kindness. If worth your notice, I will try to bestow a few moments on, what I think, the most humane way of keeping them, if it is intended to take what may be termed a reasonable advantage of their labours.—S. T. R.

[Although we totally differ from our correspondent in his opinions relative to feeding and uniting bees, yet we insert his letter, because he states some interesting facts; and we shall be very glad to hear his "most humane way of keeping" bees.—ED. C. G.]

GREENHOUSE-HEATING BY STEAM.

IN February last I gave the readers of THE COTTAGE GARDENER a description of a method I had successfully adopted of heating a small greenhouse by steam; experience has enabled me to improve upon my first ideas, and, I believe, perfect my process. My greenhouse consists of one of two rooms over the kitchen; size about 8 ft. by 12; aspect westerly. I have three large sash windows in front, all of which open. The roof is of glass, with a ventilator at the back. The joints of the floor are caulked and painted over. Under the stage is a shallow wooden tank, the entire length and width, containing water for the supply of moisture, in which gold and silver fish greatly enjoy themselves apparently. The tank also serves to catch the waste water, and is occasionally emptied, as the water gets foul, by attaching a gutta percha tube to a small stop-cock, and passing it through a hole in the front wall. Here I can grow any greenhouse plants that do not insist upon a very moist atmosphere, dryness, not damp, being in the ascendant. Now for the heating. This I effected last winter by means of a gas-pipe commu-

nicating between the kitchen boiler below and steam tins above. I could get sufficient heat, but the "women folk," not having the fear of John Frost before their eyes, were constantly interfering with me,—filling up the boiler with cold water, letting the fire go low, and other petty though undesigned annoyances. However, I set my wits to work this winter to circumvent them, and have succeeded. Thinking the steam would have no objection to travel three or four yards further to please me, I removed the top of a square Arnott's stove, constantly burning during the winter in an adjoining office, and replaced it by a tin boiler about a foot square; the bottom of the boiler forming the top of the stove, and fully exposed to the action of the coke fire beneath. On the top of the boiler is a small aperture, with a screw cover, for supplying fresh water, and an upright one-inch iron gas-pipe, which, after rising four feet, takes a horizontal direction towards the greenhouse, and joins the pipe from the kitchen boiler at a distance of about twelve feet. Altogether the steam from the tin boiler travels a distance of thirty feet, though I believe it would as readily travel sixty. In the greenhouse is a steam tin, thirty inches long, six wide, and sixteen deep, with a small tube at the top to carry off the waste, and another at the bottom to carry off the condensed steam. Both pass through the wall to the outside. In ten minutes after the water has reached the boiling point, the steam rushes into the tin, and through the waste pipe, with sufficient force to sound a lilliputian whistle. With this apparatus I can readily move the thermometer from five to ten degrees, which is amply sufficient to exclude frost, and something more—the real test of its utility, and the heat is delightfully sweet and pure. I have command over the steam from both boilers by means of stop-cocks, but rely mainly upon the small boiler over the Arnott's stove, as being less effected by disturbing causes. I would not be understood to consider my method of heating as preferable to either the flue or hot water systems, where these can be adopted; but I firmly believe there are scores of small greenhouses and conservatories where such appliances are utterly inadmissible; and I further believe that scores would be erected were it not for the expense, and especially the trouble, involved in constant firing during the winter. I fearlessly assure any one desirous of possessing the luxury of a small greenhouse, that if a good *steam-tight* kitchen boiler, or even a stove, is employed within thirty or forty feet of an eligible site, no fear need be entertained of the result, whether it be on the ground or any other floor. The peculiar formation of my greenhouse compels me to use the steam tin in a disadvantageous situation; it is my conviction that a similar tin in the *centre* of the room, or a three-inch tin pipe passed along the low side of the house and returned, would be still more effective.—C. B., *Barton*.

FLOWER-BED SHAPES.

I have found much trouble in procuring pretty shapes for lower-beds. It is a subject not much thought about; but I ind it is no use to have pretty flowers in ugly beds—they do ot look *at home:* can you help me to any nice shapes? Circles and ovals *are* very pretty, but beyond this no friend r gardener can furnish you with an idea that will look anyhing but tasteless forms. One thinks a set of small coffins 'nice" if arranged in a circle; another gard ener says, 'suppose you have a neat square, ma'am;" and a third sugests some bed all points, so that the ends of the beds must e empty or the flowers half hanging over the grass. I ave some nice beds, but I sadly want three more, and they re not to be had. My lawn is something like the sketch I ave given, only more crooked than I had room on the aper to make it. How would a lawn look covered with utterflies?—they are bright creatures, and all shapes and olours. Would not a *Butterfly Verbena-bed* be good? The round of the upper wings purple (*Walton's Emma*), with a good spot of white on each; lower wings scarlet, horns of *Blue Lobelia*, and the body some neutral tint? I had *snakes* last year, but have done away with them. The forms of just *leaves* are always pretty, but I cannot have all leaves. I hope for a few lines upon this subject, which will, I feel sure, help many young gardeners as well as myself.—FANNY.

[At present we can say no more than that "We'll think about it;" but at the same time we cannot keep your racy letter from our readers, any of whom will oblige us by suggestions of the forms of beds they have observed to be pleasing, with the names and colours of the flowers in them; for there is more relationship between form and colour than most people imagine.—ED. C. G.]

SOUP FOR THE POOR.

A GREAT deal was written and said two years ago about soup for the poor, and in the time of scarceness soup-kitchens were established; but still the poor do not appear to have imbibed the art of making it in their own homes. They, generally speaking, prefer having (if it can be procured) one good dinner a-week, and the other days are contented with potatoes, bread, &c. This I can only attribute to idleness, or want of thought and energy on the part of the wife; for I am very sure no labouring man would of his own free will choose this method of proceeding. The children, too, delight in broth, in which they can soak their bread and potato; besides, in the cold weather, how cheering to have a nice basin of smoking soup to warm and comfort you! How many times have I repeated this to the poor people around me! Their usual answer is, "Oh, it certainly would be much more comfortable, but I have no time; I also work out of doors." They forget that, generally speaking, they leave the eldest girl at home to look after the baby, and it never enters their head that she could manage to boil a little broth. They keep her away from school, and do not teach her what they so easily might, which is, "to be useful in her generation." This surely is a lesson which should be impressed on the mind of every one. Young or old, rich or poor, we have each and all of us our appointed tasks, which, however trifling they may appear to us, should be performed with cheerfulness and alacrity. "Whatsoever thy hand findeth to do, do it with all thy might." It is the duty of every one to whom God has given of "this world's goods," to try and improve the condition of the poor, both by precept and example; and I am sure if the working man's home was made a more comfortable one to him, the alehouses would be much less frequented, constant disputes between husband and wife would be avoided, and they would be led to consider that there is a God to be loved as well as feared. I have found that the best way to improve a cottage *kitchen* is to give out once or twice a-week soup made by the receipts given to them; they then taste how palatable it can be made, and will, I hope, in time profit by the hints. It would be very easy at every gentleman's house to have soup thus given to a certain number of cottagers; and if the lady of the house superintends the distribution, and at the same time adds a word of encouragement or exhortation to each, much good may be done. Servants, I am sorry to say, are very apt to forget their own cottage homes; and it is therefore necessary that the mistress's eye should watch the proceeding. I will now give some receipts, which may, perhaps, be found useful to charitably-disposed persons as well as to the poor.

It must, in the first place, be remembered, that when a "soup-pot" is once established, nothing need be wasted. The outsides of onions, celery, pieces of bread, the skimmings from any boiled meat, all improve the flavour and add to the nourishment of the soup. The vegetables you intend putting into the saucepan must be cut rather small. Whilst that is being done, allow some fat to be melting in the pot in which the soup is to be made. When the fat begins to bubble, throw in the vegetables, let them remain till they are lightly browned, and then add water, also the bones and meat you intend for it; put some peppercorns and a little salt into it, cover it closely, and let it simmer for some hours. This soup requires very little trouble. It could easily be made before the mother of the family went to her work; and if left on the hob till she returns, it will be found very palatable. Sheep's head and "pluck" (as the liver, &c., is called) make a capital soup for a large family's dinner for two days. The head should be split in two, soaked in a little water, and then, when the vegetables are fried, put into the saucepan with half a pound of damaged rice. Pea soup is very nourishing, and is always much liked. Whole peas are cheaper than the split ones,

and, if boiled sufficiently long, will be found equally good. They should be put on in cold water, and boiled rather sharply at first. "Sheep's trotters" and "cow's heels" are also most serviceable for the consumption of the poor; and they have the additional merit of keeping longer than meat will, which is an advantage to those who live far from a butcher. Some farmers have made a capital rule of paying their labourers every Friday instead of Saturday. If this was generally adopted, the week's provision could be laid in on market-day, when, generally speaking, everything is cheaper, and more choice is given. In the kitchens of the rich, soup for the poor can be made at a very moderate expense; for I fancy there are but few houses where there is no waste,—where nothing is put into the "hog-tub" that might be of service to some fellow-Christian. A little additional trouble, both to the mistress and the servant, is certainly required; but I am very sure there is no one who would grudge this, particularly when they feel they may be the means of making the cottage homes around them permanently more comfortable; for if they feel the luxury of having a nicely-dressed dinner once or twice a-week, they will soon, I trust, think of preparing the same fare every day: and in a little time we may, perhaps, see gaudy ribbons and smart caps discarded by the women, and the "mug of beer" now drank at the alehouse given up by the men, and in their place a clean cloth spread at one o'clock, and a smoking basin of soup ready for each person.—A FRIEND.

GRUB-KILLING.

MANY persons have begun, or soon will begin, to trench and rough-dig their garden ground. I fancy I found it very destructive to grubs and wireworms last winter to trench during the frost. I waited for a frost, first to drive the insects down low into the earth, and on certain signs of the next approaching frost, and while the ground was hardening and hard, I set some of my men to trench as quick, and as deep, and in as thin ridges as they could, by which means I exposed my enemies, by night and day, to an influence which, I am inclined to think, was destructive of vast numbers. I had some grumbling about hard digging, but improvement stops where grumbling is attended to.—A WORCESTERSHIRE MAN.

HONEY DEW.

I CONFESS to have been waiting with impatience for some notice from one or other of your numerous bee correspondents on the subject of honey dew; for although I stated my disbelief in its collection by bees, I could not altogether divest myself of the hope that a fact so often stated and so currently credited, might rest on a better foundation than mere vulgar error; although in my seven (not three) years' experience as a bee-keeper, my own eyes never witnessed a satisfactory instance of it. At length, after the space of nearly a month, comes the notice of "S. I. R.," who, in answer to my query for enlightenment, answers with confidence, "Undoubtedly they do!" and in proof of it he mentions his having picked up a swarm (the first he ever had, whence he was more likely to have jumped at an erroneous conclusion) so late as the 15th of July one season, which swarmed still later the following season, viz., on the 25th of July, and yet the hive was filled in *three weeks*. To account for this, he mentions the fall of an abundant honey dew at the time on the leaves of the horn-beam. This, no doubt, looks very like proof positive, but "S. I. R." does not tell us whether he actually saw his bees collect this matter. Unless he can assure us that he *witnessed with his own eyes* the collection of that dew, I must still confess myself sceptical on the subject. For the sudden increase in a hive of bees is no unusual thing even so late as November, or so early as March; while it frequently happens that bees desert an old hive in the spring or summer, with which, from some cause or other, they have become disgusted; in which case it is natural to suppose they would transfer their stores to their new dwelling, as comb was made to receive it; indeed, such instances are actually on record. Not only so, but how often has a wealthy hive been known to perish in the course of the summer from the death of its queen, or some other cause, in which case the remaining stores become the prey of the first neighbouring colony of bees that scent out the deserted treasure. Again, the swarm of "S. I. R." may have been in a locality favourable to a late collection of honey, which seems the more reasonable to suppose, seeing that the hive from which it issued, which was also a very late swarm, appears to have done equally well the year before. I need not say that honey dews are universally declared to be of rather rare occurrence by all bee writers. "S. I. R." repeats again at the end of the paragraph, "But this is only one solitary instance; I have seen it frequently." Seen what? Honey dew? So have I, at least the substance called honey dew. But has he seen the bees in any number collecting it? I have not.—P. V. M. F.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

SULPHATE OF AMMONIA (*S. G.*).—The crystals of this salt dissolved in the proportion of half an ounce to a gallon of water, may be applied with advantage to crocuses growing either in the open border or in pots. Apply it not oftener than once a week, and not until the flower-buds are visible.

CROWN IMPERIAL (*A Subscriber*).—This, which is also called the Fritillary (*Fritillaria imperialis*), has been cultivated in our open garden borders for nearly three centuries, and this is the best situation for growing them. We know of none that are higher than three or four feet, nor of any that bloom in another mode than in a cluster of pendant bell-flowers round the top of the stem and surmounted by a tuft of leaves. Gerarde cultivated them here in 1596, speaking of them as "rare and strange plants," introduced from Constantinople. It is a native of Turkey and Persia.

BUYING PINKS AND CARNATIONS (*A Breconshire Subscriber*).—You may purchase pinks now, and plant them; they are much more hardy than carnations and picotees, which you had better not procure till March.

ROSES (*A Lover of Flowers*).—Your soil may be "good," but is certainly not so for roses. Those against your house are too hot to bloom well; the others are all in *bad rose soil*. If they were in good soil, and utterly neglected, they could not be half so bad; and from your report we strongly advise you not to remove the large Portugal laurel at all; if you do, probably you will never see another leaf upon it—plant a young one. *Geranium Cuttings.*—One of our staff made a direct experiment on keeping these cuttings over the winter for our pages, and *the successful* result was reported.

PRUNING (*O. F.*).—You will see we have begun a series of articles on shrubs, trees, and climbers. The modes of pruning them form part of the plan.

BRUNSVIGIAS—BULB CULTURE (*J. E. A.*).—We very much doubt your fine large bulbs being properly named. No matter how dry a Brunsvigia is all the summer, it will naturally begin to grow in September, and no art that we know of can prevent it doing so. It first throws up a strong flower-stalk from the centre of the bulb, and by the time the flowers fade, leaves issue and go on growing all the winter, die down in May, and rest to September. *Brunsvigia falcata*, which, by the way, is *not* a Brunsvigia at all, takes the opposite course—grows from the end of the spring to October, and rests all the winter. If you are sure your dry bulbs are true Brunsvigias, begin to water them immediately, without disturbing them from the present soil. The green one you will of course keep watered till the leaves begin to turn yellow, for this is a sure rule *with all bulbs*; and another, equally important, is *never to cut off a healthy root from a bulb*. *Hæmanthus tigrinus* naturally grows from September to May, but may be *rested* and set growing almost at any season; the leaves are its chief beauty—there is no beauty in the flowers of any of them. *Rogers's boiler* is good, if your coals do not "cake."

FLOWER SEEDLINGS (*H. G. B.*).—You find these die when a few days old. The surface-soil of your seed-pots is too damp, and kills the seedlings as fast as they appear. Sprinkle a little dry soil over them, and keep them in a drier place. Plunge the pot with the *Pontic rhododendron* in the open ground all the winter; the plant is hardier than the pot; the frost might split the pot and so injure the fine plant. *Dog-tooth violet*, *Winter aconite*, and *Bulbocodium vernum*, will most likely do well in the moss and china bowl, but we never tried them that way; do not let them get too damp, particularly the first and last. The aconite, if only recently taken up, will surely do; it would flower in a lady's slipper in damp moss, and so would patches of *crocus* taken now from the borders, but neither of them would answer with a better treatment the following year.

WATER PLANTS (*Ibid*).—You say you are "much pleased with the Dictionary;" look under AQUATICS, and you will find just the information you require.

RHODODENDRONS IN PEAT (*E. N. S.*).—These for three years have looked sickly. The bottom soil is far too dry, or the sandy peat is not of the right sort. Our own rhododendrons are exactly like yours, and the

only remedy is to place a thick layer of moss all over the beds, and to water the beds well three or four times, from the middle of May to the end of July. We have seen a score of kinds of *Pancratium*, all with white flowers, but not one under fifteen inches high in the flower-stem. They are all stove plants, except *P. maritimum*, the one which grows on the northern shore of the Mediterranean.

IVY AND ROSES (*A Subscriber and Admirer*).—We once saw a cottage with all the walls quite covered with ivy, and the common China rose trained round all the windows and the two doors, with a plant of the white *Cydonia japonica* behind each scraper at one of the doors, and we never saw any other arrangement which looked half so rich. The roses and ivy were planted at the same time, and, therefore, had it all their own way for some years; but when the ivy reached the top, the roses were unfastened from the walls, except in two places, midway and at top, and tied to the ivy shoots here and there. Your roses planted after the ivy being established, will have a hard struggle for the first three years, because the roots of the ivy will be sure to suck the goodness from the new bed of soil, which, of course, you have made for the roses; and the only way to get them to agree, is to fork over the soil, once a month in summer, round the roses, and give them plenty of water. Old tea-boxes, in imitation of Mr. Beaton's tar-barrels, sunk among the ivy roots, and filled with good rich soil, and well watered in summer, would gain two or three years on your plan; it is so very difficult to get any plant to establish itself by the side of one already in possession.

GARDEN PLAN (*M. S.*).—We hardly know what you wish; but if it is only our opinion, it is this:—We do not altogether like the two beds of dahlias being close together, but the rest is so well done that there must be a reason for them—perhaps the colours and way of training. The other parts are extremely pretty and well arranged. The end figures, 1 and 2, come very near our own beds and arrangement for fancy geraniums; bed 5 in No. 1, Dark-purple heliotrope, and 9 in No. 2, we do not like so well, on the supposition that Voltaireanum is the heliotrope, which, with us, looks always as if frost bitten, and, therefore, uncomfortable; and, by all means, "one who has a right to be pleased" with No. 9, must not be otherwise dealt with for all the gardeners in England. Indeed, notwithstanding the great pleasure we derived from studying your plan, that about bed 9 and the centre roses pleased us the most. We suppose the heartsease are removed in May to make edgings for the two crescent beds of standard roses; at any rate, pansies rooted late in the autumn, or in early spring, would flower well in these two beds all summer; we have had them so all this season.

LIST OF FRUIT-TREES FOR ESPALIERS (*O. L. T., Sittingbourne*).—*Pears:* Dunmore, Marie Louise, Beurré diel, Winter Neilis. *Plums:* Precoce de Tours, Orleans, Green Gage, Golden Drop. *Apples:* Kerry Pippin, Ribstone Pippin, Nonpareil, Lamb Abbey Pearmain. As you have not stated their purposes, we have recommended a succession of table fruit only. By limiting yourself to four pears, you disable us from scheming a complete succession. As to nurserymen, be sure to get them from one of long standing and of repute. Do not buy fruit-trees of little town gardeners. In shrubs, a man may judge by the eye; but in fruits, you must take the vendor's word. Your *old pears* being ordinary standards, and not worn out, you may graft all the good kinds you can on them—say Beurré diel, Marie Louise, Passe Colmar, Glout Morceaux, Aston Town, Swan's Egg, &c. Only put plenty of grafts on; when they bear, you can encourage which you please.

VINES AND CUCUMBERS (*A Cheshire Rector*).—If you *must* force cucumbers in January, and the roots of your vines are outside, it will be better, perhaps, to turn your vines out. We have known, however, very good crops without, by taking the precautions necessary. First, the vines to be pruned the moment the leaves begin to fall, and then tied close to the roof, interposing a mat or something to keep off solar excitement, and another to prevent the air around them from attaining too readily the temperature of the warm air of the house. Then, when the vines are to commence forcing, say in the beginning of February, place hot manure over their roots, and sustain a heat of 70° in their soil. As to pruning, let it be according to the character of the young wood, reserving plump eyes and cutting away that which is weakly or inferior.

DRESSING LAWNS (*A Worcestershire Man*).—Sand is a good dressing for any lawn, and so are fine coal-ashes, more particularly on heavy land, but neither will keep down worms, nor will any other substance in nature. All the doctoring about killing worms is nonsense—we might as well believe that we got rid of the rooks in one field by killing all of them with one lucky shot; but, like the worms, others will take their places in a very short time. However, as the worm does not fly like the rook, if any one were to kill all of them in one parish some parts of the land might be exempt from worms for a season or two—that is all. Brush down the worm casts now, and the frost will keep the creatures away till the return of fine spring weather. It is immaterial what quantity of sand or ashes you use, provided you do not smother the grass: the rains will soon wash the dressing into the roots of the grass, and cause a firm bottom. Like worms, sand improves lawns by helping to drain it.

FLOWERING SHRUBS (*J. H. N.*).—Mr. Beaton will get through his lists of shrubs before the time for spring planting commences. We can add our testimony to the beauty of the *Crataegus* genus.

RANTING WIDOW.—*Helena C. W.* says: "The plant so called in the Isle of Man, and described by a correspondent in page 77, No. 109, is probably the *Epilobium angustifolium*, or French Willow Herb. It is of rambling growth, and from that circumstance may possibly have been called, by some, the *Rambling Willow*, which in course of time may have degenerated, in some localities, into the somewhat odd name of *Ranting Widow*. If this conjecture be correct, no specimen can now be sent, as the plant is not only out of flower, but, at this season, dead down to the ground. An excellent representation of it may, however, be seen in Mrs. Loudon's book of "British Wild Flowers."

WINTER BLOOMING CARNATIONS.—Mr. Fish writes to add these to his list of flowers for winter *bouquets*. Propagated early in the spring and grown in rich loamy soil, they will come into bloom after Christmas, in the greenhouse, without forcing. The *Anne Boleyn Pink* may be cut in the spring also without forcing.

PANSIES (*J. L. Phelps*).—Yours is a very fine specimen for the time of year. (*F. L.*).—Your seedling flower is very large, but crumpled; its purple ground colour and yellow eye are very usual. It will be a good border flower, but its crumpled petals will keep it from the exhibition-stand.

CAMPANULA CARPATICA (*H. J.*).—This is quite hardy; you will see what we said about it last week. All the *verbenas* you mention are half-hardy. Sown in February in gentle heat, they will bloom in the autumn of the same year. All the other plants have been described in late numbers, if you refer to our indexes.

FEEDING BEES IN AN OLD STRAW HIVE (*Somerset*).—Cut a hole in the centre of the top four inches in diameter; have a board to fit on this with a hole of the same size, which may be done with very little ingenuity, and put your bee food in the proper feeder on this board, and cover it over with another hive without any entrance. Buy Payne's *Apiarian's Guide*; it is 3s 6d, we think. Where did "the green worm" attack your cabbages, at the stem or leaves?

FRUIT-TREE BORDERS (*Philocarpus*).—No worse practice could be in gardening than trenching these borders; and no crop more injurious than potatoes could be grown in them. One great object in fruit culture is to keep the roots of the trees near the surface, whereas deep digging destroys all within nine inches of it. As to *Coal ashes* for lawns, see what we have said to another correspondent. *Soda* will keep cream or milk from getting sour longer than saltpetre will, but we cannot say whether it would be any hindrance to the speedy production of butter. We believe that *Mr. Roberts's Strawberry Tiles* are registered, but he need not be afraid that any one will imitate them. We gave our opinion upon them at page 164 of our second volume, and that opinion has been fully confirmed. No man who is not mad will attempt to make *Detonating Balls*—the process is one of great danger.

DORKING FOWLS (*E. B.*).—Our correspondent wishes to know where she can obtain some genuine.

GREENHOUSE (*J. B. Maxfield*).—If you do not wish this to have the full power of the sun at noon, then build it as Mr. Appleby long since pointed out for his orchid-house, namely, facing the east; and its ends pointing north and south. Your other question next week.

COVER FOR BEE-HIVE (*A Retired Tradesman*).—The sized milk-pan we use for covering a Payne's Cottage Hive is 19 inches in diameter across the upper rim (or from three to four in your drawing), and 9 inches in diameter across the bottom—both inside measure. It rests on the edge of the hive; and no straw is put on the top of the hive in winter. There is never any fear of bees being injured by cold—hunger and damp are their worst enemies. *Talc* for making the bee trap can be bought in London of the dealers in minerals, such as Mawe and others.

FRESHLY-MOVED LAURELS (*H. E. A.*).—Do not water these with soap-suds or any other liquid manure. You may mulch over their roots with advantage. *Rhubarb* needs no protection further than stirring the surface of the bed slightly, drawing off a little of the earth, putting on a little well decayed dung, and then returning the earth. By this means the crowns are slightly covered, but this is not absolutely needed.

NAMES OF PLANTS (*Patria*).—Your ferns are:—1. *Asplenium trichomanes*. 2. *Blechnum boreale*. 3. *Polypodium vulgare*. 4. *Aspidium filix-mas*. 5. *Scolopendrium officinarum*. (*B. C.*).—Your orange-coloured flower with small heads is *Lantana crocea*, the red and orange flower *Gladiolus psittacinus*, and the light blue flower is *Plumbago capensis*. (*Young Gardener*).—1. We believe to be the leaves of *Thuja orientalis*, the Chinese Arbor vitæ. The two broken leaves it is quite impossible to distinguish; send us a specimen in flower. (*H. J.*).—Yours is a double variety of *Pyrethrum parthenium*, or Common Pellitory.

CALENDAR FOR DECEMBER.

ORCHID HOUSE.

AIR: none is required excepting on very fine days, when the sun shines brightly, and the thermometer indicates more than the maximum heat required; care must be taken, also, that the external air, if frosty, does not blow directly upon the plants. INSECTS, such as mealy bug, scale, cockroaches, green fly, thrips, &c., to all of which these plants are liable, ought now to be diligently sought for and destroyed. POTTING should now be done with such as are growing. See former numbers of THE COTTAGE GARDENER for the method of performing this important operation. PLANTS not orchids) suspended from the roof of the orchid house should now have fresh baskets and fresh compost. WATER must only be given to such plants as are growing. *Phaius grandifolius* (Large-leaved P.) will now be showing flowers, to bring them to perfection give free supplies of water. SYRINGE logs occasionally, on such mornings as are likely to be sunny.

T. APPLEBY.

PLANT STOVE.

The plants in this department should now be almost in a state of quietude. Excepting the winter blooming plants very little water is necessary, indeed, only just enough to keep the soil moderately moist. AIR will be required in moderate weather, giving it from ten in the morning to three in the afternoon. A few pots of each kind of *Achimenes* may now be potted to flower early. Choose a few of such *Gesneras* as show growth, pot them, and give a little water. *Gloxinias* may have the same treatment. *Hedychiums* should be repotted in fresh soil the last week in the month, placed in heat, and a little water given. INSECTS, destroy diligently. A portion of *plants to force* may now be brought into the stove to bring them on gently, such, for instance, as *Kalmias*, *Rhododendrons*, *Lilacs*, and *Roses*. FUMIGATE frequently with tobacco, to keep under the green fly and thrips. T. APPLEBY.

FLORISTS' FLOWERS.

AIR, give abundantly in fine weather to all plants in frames or pits. COVERINGS, apply to *Carnations* in frosty or heavy rainy weather, also both to plants in frames and to *Tulip* and *Hyacinth* beds. *Gladioli*, of sorts, may yet be planted. *Hyacinths*, shelter in severe weather; in pots, place in heat to bloom in February. *Pansies*, shelter from frost and heavy rains; such as are to bloom in pots put into 7-inch pots singly, and place under glass in a cold frame, water, pick off decaying leaves, and give abundance of air. *Ranunculus bed*, turn over, and shelter from heavy rains and snow. *Roses* may yet be planted successfully; those in pots for exhibition water with liquid manure; prune. WATER, give to all florists' flowers in pots about once during this month, some fine mild morning. *Verbenas*, shelter; such as are intended for exhibiting in pots give a shift into pots a size larger; towards the end of the month nip off the ends of each shoot to make them branch and become bushy.

T. APPLEBY.

GREENHOUSE.

AIR, admit freely when the external temperature is above 35°. BULBS, well rooted in pots, place in gentle heat for early blooming; keep mice from the successions; few things are better for this than chopped furze. CALCEOLARIAS, CINERARIAS, CAMELLIAS, &c., attend to with heat and moisture, according to the time you desire them to be in bloom; the two first will require frequent fumigating. CLIMBERS, prune them generally, to give light to the plants beneath them. *Passion-flowers* may be pruned close back to main shoots. *Tecoma jasminoides* will bloom best on longish, strongish shoots, the smaller, therefore, should be cut out. Train and clean winter-flowering ones, such as *Kennedya Marryattæ*, and various *Tropæolums*. EARTH in pots and borders keep fresh by stirring. GERANIUMS, encourage the forwardest, when early blooming is desirable, with plenty of air and a medium temperature of 45°, giving them plenty of room, and tying them out. HEATHS, keep cool, and give abundance of air in mild clear weather. HEAT, by fires, apply when necessary; use a little covering in severe weather in preference to making the fires strong. IXIAS, GLADIOLI, and the hardier LILIES, pot and set in a cold pit, to be protected from frost. INSECTS, keep under, by fumigating and scrubbing. LEAVES—dirty, wash; decayed, remove. MIGNONETTE, take in a few pots now and then. PRIMULA (Chinese), introduce; water with liquid manure when it shows the flower-bud; the double white give a favourable and warm position. ROSES, and other SHRUBS, introduce for forcing; commence at first with a top temperature of from 45° to 50°, if the bottom-heat is from 5° to 10° higher all the better. SALVIA SPLENDENS, supply liberally with water, and give it a warm corner. SUCCULENTS keep dry, and *Cactus* especially, except the *Truncatus*, which will now be in bloom—give it a warm position or the blooms will not open freely. WATER sparingly, unless when the flower-buds are swelling and opened; give it after breakfast, and with liquid rather higher than the temperature of the house. TEMPERATURE, 45° during the day, 40° at night, with from 5° to 10° more, at a warm end, or in a conservatory, for placing tenderer and forced flowers when first introduced, allowing in each case a rise of 10° or 15° for sun heat. In severe weather, prefer covering, even during the day, to large fires. R. FISH.

FLOWER-GARDEN.

ANEMONES, defend in bad weather; plant, if mild, for the last time till February. AURICULAS, defend in inclement weather. BULBS omitted, may be planted if the weather be mild. (See November.) CARNATIONS, defend in inclement weather. COMPOSTS, prepare. CROCUSES, take up and pot in lumps, to force in pots. DIG over borders, and dress all quarters generally. EDGINGS, plant. FIBROUS-ROOTED perennials and biennials, divide and plant. FLOWERS (choice), defend generally from inclement weather. GRASS, roll occasionally, if winter be mild. GRAVEL, roll and keep orderly. HAWTHORN, gather berries and bury in sand to sow next October. HEDGES, plant. HYACINTHS, defend in inclement weather. LEAVES, collect for compost. MULCH round the roots and stems of shrubs newly planted. PLANT shrubs of all kinds. POTTED PLANTS, protect in deep frames, &c.; place in hothouse for forcing. PRIVET, gather seeds of, and make young shoots into cuttings in bad weather, lay them in damp sand or soil, and set next February. PRUNE all shrubs requiring regulation. PRUNED ROSES, scrape bark and wash with lime and soot. RANUNCULUSES, defend in bad weather; plant, if mild. SEEDLINGS of all kinds require protection. STAKE shrubs newly planted, and any others requiring support. SUCKERS may be planted as removed during the winter dressing. TULIPS, defend in bad weather. TURF may be laid in open weather. UNCOVER protected plants, and if not dry place dry materials next them. WATER in glasses, change weekly; add a few grains of salt or five drops of spirit of hartshorn. Buy all your TREES and SHRUBS forthwith, and put them in ground preparatory for final planting in February. Think on the ICE HEAP, and let leaves be gathered to cover it. D. BEATON.

FORCING-HOUSE.

AIR, admit as often as circumstances permit. APRICOTS (see PEACH). BARK-BEDS, stir, and renew if heat declines. CHERRIES (see PEACH). CUCUMBERS, in pots or boxes, introduce; water when dry, and train. FIGS (see VINES): they may be in pots in the Vinery. FIRES: beware of too much fire heat. See that all FRUIT-TREES IN POTS, OR TUBS, out-of-doors, are well covered from frost. KIDNEY BEANS, sow in small pots, not larger than 48's; water frequently when up. LIGHT, admit as freely as possible. MATS, put over glass in very severe weather, even in the day-time, if really necessary. MUSHROOMS, attend to the beds; water if dry; renew exhausted portions on shelves; they require a moist atmosphere and air on proper occasions. NECTARINES and PEACHES in blossom, keep at about 55° during the day, and at night about 40°; water very sparingly; shake branches gently to distribute the pollen; stir earth around often. PINE APPLES (fruiting) require increased bottom-heat, to about 78°; water seldom; temperature in house from 66° to 70°; successions, ventilate freely and renew linings. STRAWBERRIES, in pots, introduce; when blossoming, water frequently; day temp. not more than 60°; keep them near the glass. THERMOMETER, watch carefully. VINES—in leaf, keep about 60°, in blossom, about 70°, during day; at night, 50°; protect stems outside by haybands; give liquid manure if dry. WATER, soft, and warm as the house, apply as requisite; in pots, &c., keep constantly in the house. R. ERRINGTON.

ORCHARD.

ALMONDS, plant. APPLES (Espalier), prune, &c.; plant, &c. APRICOTS, plant; prune and train in frosty weather. BRINE, apply with a scrubbing-brush to stems and branches of fruit-trees, to destroy insects, eggs, and moss. CHERRIES (Wall and Espalier), prune and train; plant. CHESNUTS, plant. CURRANTS, prune; plant. CUTTINGS of Gooseberries and Currants may be planted. ESPALIERS, prune and regulate. FIGS, protect from frost. FILBERTS, plant. FORK the surface around fruit-trees. GOOSEBERRIES, plant; prune. LAYERS, plant. LOAM and COMPOST, obtain. MEDLARS, plant. MULBERRIES, plant. MULCH, put around newly planted trees. NECTARINES, plant prune and train in frosty weather. PEACHES (See NECTARINES). PEARS, plant; (Espalier) prune, &c. PLUMS, plant; (Wall and Espalier), prune. ORDINARY PRUNING, attend to generally. QUINCES, plant. RASPBERRIES, plant; prune. SERVICES, plant. SNAILS, destroy in their torpid state. STAKE and support trees newly planted. STANDARDS, remove dead and irregular branches from. SUCKERS, plant. TRENCH and prepare borders, &c., for planting. VINES, plant, prune, and train. WALNUTS, plant. WALL-TREES generally, prune and regulate. WALLS, it is a very beneficial plan to paint these by means of a white-washer's brush, with a liquid mixture of 8lbs. lime, 4lbs. soot, and 6lbs. sulphur. It destroys and banishes insects, as well as by its dark colour promoting the warmth of the wall. The liquid employed in which to mix the above should be urine and soapsuds in equal proportions.

Any trees proposed to be regrafted in the spring may be *headed down* now, but the stumps of the branches should be left sufficiently long to permit a few inches more to be cut off at the time of grafting.

R. ERRINGTON.

KITCHEN-GARDEN.

ARTICHOKES, dress. ASPARAGUS-BEDS, dress, b.; plant to force; attend that in forcing. BEANS, plant a good main crop the first week in the month, if not done the last week in November. BEETS (Red), dig up and store, b. BORECOLES, full grown, may be taken up with good balls of earth, and planted in any nook or corner, or plot of ground of less value. BROCOLIS, treat the same, but lay in deeper, so as to earth up the stems well; lay them well with their heads towards the north. Thus moving these vegetables gives an opportunity to prepare the quarters they occupied for other important crops; they are thus better enabled to stand the severe weather that may be expected, and, being closer together, they are much more convenient for protection. CABBAGES, plant; earth up. CARDOONS, earth up. CARROTS, store the main crops if not done, and attend to those growing in frames, &c. CAULIFLOWERS, attend to airing in all favourable weather those in frames or under hand-glasses: remove all decayed leaves, and look after slugs. CELERY, earth up, and protect when necessary. COLEWORTS, plant. COMPOSTS, prepare and turn over. CUCUMBERS, attend to those bearing; sow seed towards the end of the month for plants to ridge out in the middle of January. DUNG, prepare for hotbeds. EARTHING-UP, attend to. ENDIVE, take up full grown on a dry day, and plant deep and close together at the foot of walls, or other warm dry corners convenient for protection in severe weather. HORSE-RADISH may be dealt with in the same way as directed for the Jerusalem Artichoke. HOTBEDS, attend to. JERUSALEM ARTICHOKES, give a good top covering of any rough mulching or garden-refuse, so as to keep out frost, and to enable them to be taken up when required; yet it is well to have a few of the roots stored in case of snow, or other rough weather, at the very time they are wanted. KIDNEY BEANS, force, c. LEAVES, fallen, remove. LETTUCES, attend to those advancing in frames on a gentle heat; see that no drip falls into the hearts of the plants, and give all the air the weather will permit to such as are planted in frames for winter protection only. LIQUORICE, dig up. MINT, force. MUSHROOM-BEDS, make; attend to those in production. PARSNIPS, dig up and store, b. PEAS, sow in the open ground; attend to those advancing, protecting them from frost, mice, slugs, and birds. PLANTS to produce seed, attend to, b. POTATOES may be planted in light soils in open weather, and in hotbeds towards the end of the month; examine often the in-door stores. RADISHES and SMALL SALADING, sow in frames, &c. RHUBARB, take up and pot off for forcing, or cover up with pots or tubs and fermenting materials. SEA-KALE, cover up with fermenting materials; fallen leaves are the best material both for covering up the Sea-Kale and Rhubarb. SPINACH, keep clear of weeds and fallen and decayed leaves. TANSY, force. TARRAGON, force. TRENCH, drain, &c., vacant ground. WEEDING, attend to.

T. WEAVER.

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WEEKLY CALENDAR.

M D	W D	DECEMBER 5—11, 1850.	WEATHER NEAR LONDON IN 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
5	Tu		29.379—29.275	47—29	S.	0.10	51 a. 7	50 a. 3	5 35	2	9 11	339
6	F	Nicholas.	29.723—29.610	52—34	S.	—	52	50	6 25	3	8 46	340
7	S	Skylarks flock.	29.623—29.372	49—41	S.E.	0.11	54	50	7 22	4	8 20	341
8	Sun	2 S. IN ADVENT. Conception B.V.M.	29.622—29.392	49—25	S.W.	—	55	49	8 22	5	7 54	342
9	M		30.018—29.816	45—26	E.	—	56	49	9 25	6	7 27	343
10	Tu		30.139—30.155	39—35	N.E.	—	57	49	10 30	7	7 0	344
11	W	Grosbeak seen.	30.129—30.089	41—34	N.E.	—	58	49	11 35	●	6 32	345

LITTLE does the world know—little does it think—of the sleep-robbed eyes and the aching brains—of the effort without relaxation, and of the mind without repose, on which, too often, that world is dependent for its daily, weekly, and monthly periodical literature. To live to write for the benefit of mankind is an enviable existence; but to write to live is one of the worst forms of the curse which bade man earn bread by the sweat of his brow. Let us try to unveil this truth by a sketch of the life of the late JOHN CLAUDIUS LOUDON, and let us at the same time bid our readers to learn from his example that difficulties apparently insurmountable are but as grass before the mower's scythe when grappled with firmly and perseveringly. He was born at Cambuslang, in Lanarkshire, on the 8th of April, 1783; and it is worthy of remark, that Dr. Claudius Buchanan was the son of Loudon's mother's only sister—so that from the mothers' side appears to have descended that indomitable energy so characteristic of these two eldest sons. Both mothers were left widows at an early age; and both were indebted to those sons for the means of rearing their larger than ordinary families. Loudon was a gardener even in childhood—"his principal pleasure being then in making walks and beds in a little garden his father had given him;" and, fortunately, every encouragement was given to his taste, and every aid that could advance him on his selected course. He was sent to Edinburgh, and not only instructed in Latin—the language which placed the works of all botanists within his power—but he was well grounded in French and Italian—aids to continental intercourse—and he was also enrolled in the classes of Botany and Chemistry. Nor let it be supposed that, even at this early age, the spirit of independence, the firm resolve to obey the dictates of duty, did not manifest themselves. On the contrary, let it be told to his honour that he paid his masters out of the proceeds of the translations which he sold; and that when, at the age of fourteen, he was placed under a nurseryman and landscape gardener, he still continued to attend the university classes, and sat up two whole nights in every week, so that his hours of study might not be deducted from the more practical lessons available by day.

In 1803 he proceeded to London, and, young as he was, readily obtained employment as a landscape gardener. He at once evinced that he had no fear to restrain him from attacking practices which his better judgment told him had no other support than their antiquity; for finding the London squares had no more cheerful ornaments than the unvaryingly sombre yew and other "nevergreens," he published *Observations on Laying Out the Public Squares of London*, and heralded in the better taste which now characterises the vegetation employed in them. Passing over some of his less important works, and his changes of residence between London and Edinburgh, we find that "a mercy in disguise" led to his first passage upwards on the ladder of life. In 1806, being an outside passenger on a night-coach, exposed to the inclemency of the weather, and unwisely regardless of changing his wet clothes, he was seized with rheumatic fever, from the effects of which he never entirely recovered. Debilitated by its severe onset, he occupied lodgings at Pinner, near Harrow, hoping that fresh air and change of scene would promote the return of strength. He here had abundant opportunity for observing how inferior was then the agriculture of England to that of his native country; and he successfully urged upon his father the policy of renting a farm near London. Conjointly they occupied Wood Hall, and with such success, that the year following Loudon was justified in publishing a pamphlet, entitled, *An Immediate and Effectual mode of Raising the Rental of the Landed Property in England*. This naturally gained the attention of the landlords, and led to the author's introduction to General Stratton, and, in 1809, to his renting under this gentleman Tew Park, in Oxfordshire. In conjunction with an establishment for the education of agricultural pupils, he prosecuted farming so successfully, that in 1812 he had realized £15,000. To earn worthily and to retain wisely are mental qualities not always united, and Loudon is an example in point. He rashly gave up his farm, dismissed his pupils, invested his money, and set forth upon a continental tour. Pleasant pastime this, and not altogether unprofitable, for he gathered stores of knowledge, which his pen and pencil turned to good account in after years. But when he reached England in 1814 the time of flowers was passed, and the bitter fruit appeared,—his investments had proved unsubstantial, his fortune was lost, and the harvest had again to be sown for. He was not the dastard who dares not face a difficulty, so he again addressed himself with energy to Landscape gardening. He now resolved to publish a comprehensive work on horticulture, and, it is said, visited France and Italy in 1819 for the purpose of completing his knowledge of the continental gardens. If this were his object, the result did not justify the outlay; for there is nothing in his *Encyclopædia of Gardening* that required for its procuring a continental trip. This work appeared in 1822, and is acknowledgedly the best compilation, mixed with much original information, that has ever been added to our gardening literature. The success of this work prompted him to undertake a series of *Encyclopædias* on Agriculture, Plants, and Architecture, the last of which appeared in 1832. "The labour," says Mrs. Loudon, "was immense; and for several months he and I used to sit up the greater part of every night, never having more than four hours sleep, and drinking strong coffee to keep ourselves awake." He then planned a new work, still more extensive and requiring still more labour—his *Arboretum et Fruticetum Britannicum*, embracing every particular relative to the trees and shrubs native or introduced into these islands. It appeared in 1838; and, publishing it at his own expense, he then found himself indebted about ten thousand pounds to his printer, paper-maker, and wood-engraver! During the time that these vast works were going on, he edited *several* periodicals. In 1826 he established the *Gardener's Magazine*, and continued it until his death. In 1826 he commenced his *Magazine of Natural History*, and edited it until in 1836 it passed into other hands. In 1834 he commenced the *Architectural Magazine*, discontinuing it in 1839; but in 1836 had begun publishing his *Suburban Gardener*; so that at one and the same time, in addition to the *Arboretum*, he edited four monthly publications, and to produce them with due regularity "he literally worked night and day."

These labours would appear excessive even for a man in perfect health and with the vigorous use of his limbs, but they almost exceed belief when the circumstances under which they were carried on are known. His first attack of rheumatic fever in 1806 was so severe as to produce permanent stiffness of the left knee. Subsequently his right arm became affected; and the attack was so severe that, the usual remedies having failed, he submitted to shampooing. During the process his arm was broken so close to the shoulder as to render setting it in the usual mode impossible. Shortly after the arm was again broken, and then, in 1826, amputation became unavoidable. In this year it will be noticed, he established the *Gardener's Magazine*, and entered upon that career of herculean mental effort we have detailed; nor was it carried on without a still further shattering of his frame, for now his left hand became so disabled that the use of only the third and little finger remained. Maimed and infirm of body, his mind yet retained its vigour unabated, and he had recourse to the employment of an amanuensis and draftsman. Thus did he give ground only inch by inch as death advanced; and when the day arrived when to him "time must be no more," death still found him labouring at his vocation, and "he died standing on his feet." Chronic inflammation of the lungs terminated his life on the 14th of December, 1843. The work on which he was employed at the time of his death is entitled, *Self-instruction for Young Gardeners*—a class deeply indebted to him, for he laboured sedulously and effectively to elevate them and to promote their interests. Let her who knew him best utter his requiem—"Never did any man possess more energy and determination; whatever he began he pursued with enthusiasm, and carried out, notwithstanding obstacles that would have discouraged any ordinary person. He was a warm friend; most affectionate in all his relations of son, husband, father, and brother; and never hesitated to sacrifice pecuniary considerations to what he considered his duty."

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-three years, it is found that the average highest and lowest temperatures of these days are 46.4° and 35.5°, respectively. The lowest cold observed was 14° on the 6th in 1844. During the period there were 83 fine days, and on 78 days rain fell.

MANY years since when lecturing upon the sciences applicable to the cultivation of plants, we remember a gentleman's gardener asking us to suggest anything that we thought would assist him in obtaining forced asparagus early in autumn, because his employer liked to have it all the year. We suggested that the plants, in a very narrow open-ground bed, should be allowed to send up their stems, and when they had done blooming, say at the beginning of September, that the stems should be cut down, and a trench all round filled with hot, fermenting dung. He adopted our suggestion with perfect success, and we thought no more about the matter, until a very clever gardener, the other day, sent us as a problem in gardening, difficult to be solved, "How can you easily obtain forced asparagus in October?" We replied as above, and he has, after acknowledging we were correct in principle, stated his own practice, which requires, as in the usual modes of forcing asparagus, that plants be raised annually for the purpose. He says, "There is much waste in forcing asparagus in the open ground

beds. The quantity of fermenting dung required is far greater than if the plants are taken up and put into a frame. Moreover, when once you have set the roots growing at the end of September, you must keep them growing all the winter and spring, otherwise they die or are spoiled; as is the fate with half the bulbs that are forced into a vegetating state. My practice is, about the middle of September, to cut down the stems of all the asparagus which is to be forced that season. The buds on the root-crowns immediately begin to grow, and require very little heat to force them into production until Christmas has arrived. All that is required is a hole in the ground filled with slightly-hot dung, covered over with a few inches of earth, and the roots to be planted thickly in this as for ordinary forcing them. A mat, or a few boards covered over the frame, just to exclude frost and inclement weather, is all the shelter required."

Now, we mention this thus prominently, because it is an illustration of the useful suggestions science is capable of making to the practitioner. When the above question was put to us by the gardener in the lecture-room, we had never tried to produce asparagus in early autumn; but we knew it to be a law of vegetable nature that if a plant is cut down before it has completed its annual growth, and before the elaboration of the sap is finished, preparatory for the next year's development, then that plant makes an effort by the production of fresh leaves to complete the processes that had been interrupted by the premature cutting down. We inferred, therefore, that by cutting down the immature asparagus stems, their roots would make an effort to throw up fresh stems, and that advantage might be taken of this, and by promoting that effort asparagus for the table would be obtained in early autumn.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

THE STANWICK NECTARINE.—*Gardeners' Mag. of Botany*, vol. ii., p. 129.—Lord Prudhoe, of Stanwick Park, who has since succeeded to the Dukedom of Northumberland, having received from our Vice-Consul at Aleppo, Mr. Barker, some nectarines and peaches with sweet kernels, sowed some of their stones in the March of 1843, and from one of them was produced the parent tree of what is now known as the *Stanwick Nectarine*. Mr. Baillie, gardener to his Grace, says, "the tree on its own roots is a strong and robust grower, and continues to grow late in autumn, and has hitherto (1846) retained its leaves throughout the winter. I have no doubt, however, that when worked upon apricot, plum, or almond stocks, it will prove quite hardy, and bear well even in the north of England." (*Hort. Soc. Journal*, vol. i., p. 273.) The fruit of this nectarine is middle-sized, roundish oval, with a point opposite the stalk end; pale yellow skin, passing off to bright red at the end furthest from the stalk; flesh greenish white, slightly red next the stone, from which it separates freely. Ripe about the end of August or beginning of September in Yorkshire. Flowers large, pale pink; leaves round-saw-toothed, with two kidney-shaped glands at the base. (*Gardeners' May. of Botany*, p. 129.) Mr. Thompson, of the Chiswick Gardens, says the flesh is "exceedingly tender, juicy, rich, and sugary, without the slightest flavour of prussic acid. The kernel is sweet, like a nut, possessing nothing of the bitter-almond flavour." (*Hort. Soc. Journal*, p. 272.)

The Duke of Northumberland having munificently given buds from this nectarine to raise trees for sale, the proceeds to be given to the Gardeners' Benevolent Institution, and Mr. Rivers, in a similar good spirit, having raised those trees without charge for their propagation, we have thought it right to place these particulars before our readers; but we do no more. Without expressing any opinion upon the merits of the nectarine, we sincerely hope that both the Institution and the purchasers of the trees may be one and all benefited.

And now for a few words relative to the whole race of nectarines, a fruit which we have always been told was unknown to the ancients, but from which opinion we dissent. Florentinus, one of the Geoponic writers who lived at the very commencement of the third century, tells us of a fruit, *the barbilus*, which was raised from the stone of the peach.

Theocritus speaks of this fruit as *Horpeekes Brabylois*; and Athenæus, in a note upon this, says, "This stone fruit is smaller in circumference than the *coccymelon*, but similar in flavour, only some what more acid." It is singular that no one has been able to find a probable derivative for our word peach, yet it seems to be an easy contraction and corruption of *horpeekes*.

The name *Barbilus* or *Brabilus* appears to be derived from *Bra*, well, and *byllos*, swollen—literally meaning plump and smooth; and we know of no more accurate description of the Nectarine than to say, it is "a plump smooth Peach." We believe, also, that nectarines were known to the Romans by the name *Tuberes*. Pliny says, "Of all trees the Almond blooms first in the month of January; next to it flower the Apricot, and then *Tuberes* and early Peaches *(Præcoces)*." Now, what fruit, except Nectarines, could by any probability have been meant by *Tuberes*? We have other notes in

rt of our opinion, but to insert them would exceed nited space.

whether the nectarine was known or unknown to cients, it is quite certain that it was not introduced efore the end of the 16th century; for none of our writers, though they mention fully the peach, take otice of the nectarine; and Parkinson, in 1629, is st to speak of the *Nucipersica*, or "*Nectorin*," add- though they have been with us not many years, ve they been known in Italy to Matthiolus (who n 1577), and others before him. They knew no than the Yellow nectorin, but we, at this day, do five several sorts of nectorins — the Musk, the n Red, the Bastard Red, the Yellow, the Green, ie White."

nectarine belongs to the Natural Order of *Almond-* (Drupaceæ), and to the 12-*Icosandria* 1-*Monogynia* nnæus. Modern botanists have formed a new for it and the peach, to which they have given the of *Persica*. Whether it was right, for some trivial nce, to separate these fruits from the almond, *dalus*, admits of great doubt; but upon what d it can be defended calling the nectarine a species *ca lævis*), when it is notorious that the same twig imes bears both peaches and nectarines, and at a fruit half nectarine and half peach, we have yet rn. It is equally notorious, that even when in the nectarine cannot be distinguished from the by any specific marks of difference.

NGED-LIPPED CATASETUM (*Catasetum fimbriatum*).— *'s de Gand.*, t. 231.—*Paxton's Flower Garden*, vol. i., .—*Catasetum* is derived from *kata*, downward, and bristle, referring to the position of the horn-like sses on the column; *fimbriatum*, fringed, refers to inge-like edges of the labellum, or lip, of the flower. genus furnishes the name of a small group of the a section of orchids, *Catasetidæ*. The nearest alli- of Catasetum are *Mormodes* and *Clowesia*. Every ctive feature, except that derived from the pollen s, which has hitherto been adopted by botanists as the foundation of a proper or natural classification of these strange-looking flowers, has broken down in succession, as anomalous forms have successively appeared. Orchids are remarkable as much for the variety of the odours they possess as for the unusual configuration of their irregular flowers, and the transformation of the different parts of the flower in different genera. But that which, more than any other, startled the ideas of botanists, and shook to the foundation their views of the soundness of genera and species, was first observed in this genus, *Catasetum*, by Sir Robert Schomburgk, and described by him a few years since in the *Linnæan Transactions*, vol. xvii., p. 551. This was no less than as if the flower-spike of a hyacinth had furnished at one and the same time samples of such flowers as those of Agapanthus and Day lily, or of the Tuberose or Asphodel, or, indeed, of any of the lily order in affinity with it. Upon the flower-spike of a Catasetum with which Sir Robert met in Demerara were flowers of *Myanthus barbatus*, *Monachanthus viridis*, and true flowers of *Catasetum!* Since then we have been made familiar with similar instances under cultivation at home.

No orchids are more easy to manage than those associated with *Catasetums*, as instanced above, to which we may add *Cyrtopodium* and *Cycnoches*, or the Swan-neck orchid, which complete the section. But it is of little use to talk of sections when every new freak in any new plant of a section may chance to break down the limits of either section or genus; nevertheless, the orchids seem much better assorted than many families which have been arranged by successive writers since the days of Linnæus—the lilies for instance.

The *Fringed-lipped Catasetum* is a stove terrestrial orchid, a native of the marshes in Villa Franca, near Brazil, from whence it was introduced in 1847 by M. de Jonghe, of Brussels. It flowers about August. The *pseudo-bulbs* are longish egg-shaped, producing *leaves* shaped like those of the willow, but plaited; the *flowers* grow in drooping clusters, on a stalk springing from beneath a pseudo-bulb; their *sepals* are shaped somewhat like the leaves, as are their *petals*, but these lie close to the upper sepal, and are rather broader and shorter than the sepals; the *labellum*, or lip, is heart-shaped, with a fringed edge, and a blunt spur behind. The sepals and petals are pale purplish pink, spotted with red, and the lip in one variety (Heynderycxii) creamy white, with a blush of pink; but in another variety (Legrellii) it is greenish white.

THE SAGO PALM (*Cycas revoluta*).—*Gardeners' Mag. of Botany*, vol. ii., p. 172.—*Cycas* is the Greek name for a palm, and *revoluta*, or rolling back, refers to the position of the leaflets or side divisions of the feather-like leaves. It belongs to a small order of plants called after this genus *Cycads* (Cycadaceæ), and to *Diœcia*, the 22nd class of the Linnæan system, having the male organs on one plant and the female ones on another. There is no trace in the order of what is usually called a flower, and the fruit is produced in large cones, which rise from the top of the column in the middle of the waving plume-like leaves. These cones are in all respects

arranged as in the *conifers*, or pine tribe; and the seed or nuts from these cones are the parts which are said to furnish the sago of commerce. It is now, however, questioned, by competent authorities, whether this is really the tree or plant which produces the true sago, as was asserted by Rheede. Blume tells us that a gum, like tragacanth, is obtained from *Cycas circinalis*, which when dried is applied, in Java, to ulcers, in which it induces suppuration in a short time. Thunberg also relates, that a kind of sago is produced from the soft pulpy matter inside the thick stems of *Cycas revoluta*. At the Cape of Good Hope, a substance called *Caffre-bread* is obtained from African Cycads, in the genus *Encephalartos* or *Zamia*, and in Mexico the *eatable Dion*, another Cycad, furnishes seeds as large as a chestnut, from a huge cone which could hardly be distinguished from that of the *Araucaria*. One of them which was sent to the London Horticultural Society, a few years ago, was as large as a child's head. The Society have distributed plants of the Mexican *Dion* lately, which, with the different species of Cycas, and the African Zamias, and Zamia-like plants from the Caffre frontier, of which there are many species, together with the Screw Pines *(Pandanus)*, from the south and eastern tropics, would furnish a low stove in imitation of those palaces of glass now becoming fashionable for the display of the more noble palms. Specimens from the different genera of Cycads may now be seen in the south wing of the new conservatory at Kew, which has furnished us this idea of the more humble imitation.

We have also on record, in the *Fossil Flora* of Great Britain, that *Cycads* have once formed a large portion of the vegetation of this country, a circumstance not more to be a subject of surprise than that, notwithstanding the general similarity of Cycads to Palms, there is, in reality, but a single step between the former and the present race of pines and firs, and one more step would introduce us, botanically, into the regions of ferns! One day, not far distant, the spore cases, or seed cones, on the back of a fern leaf, that of the Cycads from the centre of a cellular stump, and the fir-apples of our grandfathers, will be found to be, after all, but different modifications of one and the same method of a nearly allied group of vegetation to perpetuate their species by seeds; and, also, it will be found that the pinnated leaf of the Fern, the Cycas, and Zamia, and the comb-like leaves of the Silver Fir, are but different stages of development belonging to three large orders of plants, closely linked together by the ties of brotherly kindred.—B. J.

THE FRUIT-GARDEN.

FORMATION OF FRUIT AND KITCHEN-GARDENS.

(Continued from page 45.)

THIS subject was by no means exhausted at the last handling; and we feel that by showing *how* the many little details connected not only with each tree individually, but with the whole collectively, and as a system, can be carried out, we shall be giving satisfaction to a numerous body of readers, not only present but prospective. We would beg it to be understood, before proceeding farther, that in proposing a scheme for the general disposal of fruit trees in the kitchen-garden, we deem it necessary to shake off all fetters of a prescriptive character, and to discuss the matter on a mere common-sense basis; it matters not what *has been* recommended, we must see what *can* be done, and say why it *ought* to be done.

We have to propose then, in the first place, that the tree culture of the kitchen-garden shall form a system by itself; the main pivot on which such a system is hung, being a thorough recognition of a *special* course of culture applied to the *roots* of the fruits, totally unfettered by the vegetable or flower culture, which, it may be, is carried on to within six feet of their stems.

In the second place, we are now going to deal with trees under what is termed a dwarfing system, whether trained or not; with the ordinary orchard tree we have nothing to do at present. It will be seen that, at page 45, we suggested that nine inches' width of border might be allowed to every foot in height of the wall. This advice was intended to apply to those who are so fond of planting gross vegetables on the wall borders. By it we had hopes of directing our readers to a thorough consideration of the *root question*: one, which we are sorry to say, our practical gardeners in the main scarcely recognize in its whole bearings. Still we should have no objection to allowing a much greater width to the wall border, provided that instead of vegetable culture dwarf fruit trees trained low were substituted. The margins of the south, east, and west wall borders may be thus appropriated; the north we may for the present leave out of the question.

On the other side of the walk there should be another fruit border, of course parallel with the walk; this we would plant entirely with dwarfed or pyramidal trees, *without trellises*; confining the trellises (of whatever character, excepting high arcades) to the margin of the wall borders. Now the border next the kitchen-garden must have a walk behind it; this we would make about 40 inches in width; and next to this, at the south end of each quarter of the garden, we would have a huge slope for the cultivation of early vegetables: this to be the equivalent for the loss of the south wall borders.

One has read, in certain fables or allegories, of birds confabulating; and why not vegetables? Only fancy a huge cauliflower, grown white with a liberal amount of manure, addressing his time-honoured companions of the peach border on the loss of their "vested rights;" and on the gross indignity of being compelled to associate with companions of inferior grade on this new-fangled slope, through the plotting innovations of disturbed minds with which the age abounds; Messrs. the peas, lettuces, Kidney beans, &c., calling loudly for a bill of indemnity, and for a proper equivalent. In such a case we could give both one and the other. As to indemnity, we could assure them that they should still have the same allowance of manure as formerly; and that the well-formed incline of their new destination should guarantee them *at least as much* of the direct influence of the solar rays, with less of eddying currents of wind. And as an equivalent they will enjoy a greater depth of soil; for who, in these days of improved gardening, is not alarmed when he sees the thoughtless labourer hacking away at the numerous healthy fibres which annually make their way to the surface, in order to get a "good bottom" for his early crops! We have seen men, who ought to know better, thus committing certain damage for an uncertain good, who would otherwise shrink with horror from a case of root-pruning, the necessity for which was obvious. We beg pardon for thus making a joke of so grave a subject, but we would fain try any and all means to get our readers to throw aside this last *great* prejudice of border cropping as a necessity.

Our able helpmate, Mr. Barnes, whose code of kitchen-

aing stands so high, has repeatedly pointed to the benefit derivable from artificial slopes, having less proved them for years, as we have done. In- for the last six years, we have had a plot of con- ble extent worked *entirely* on this system, in beds rallel lines running east and west; and here we ce most excellent vegetables, at least as early as glorious peach border days.

to *trellises* for the margins of the wall rs, we would not confine our readers to iape alone. The table trellis, whether per- horizontal or with a slight incline to the is a most excellent form for some kinds; for others the saddle trellis might be ed,—or even perpendicular trellises, such ggested for the gooseberry or the currant, be put in requisition. Whatever be the none should exceed five feet in height; indeed, would be unnecessary under a dwarfing system. es, it is of importance that the eye of the spectator erator should see to the very bottom of the wall be- and five feet is quite high enough for a lady ner.

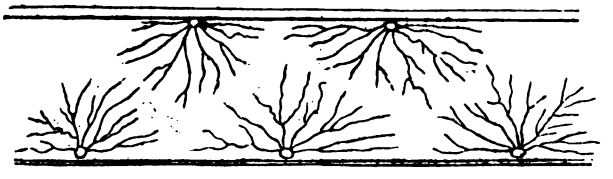
ese things premised we will proceed to show how s should be appropriated through the whole gar- first observing, that we would not plant another ree within walks, but in the manner here explained; nterior of all the quarters, therefore, will be kept most exclusive manner for vegetable culture. ies differ so much in size, in habits, and in extent den ground, that it is, we confess, difficult to find ting point; but as our friend Beaton sarcastically res, that one portion of the world believes that THE GE GARDENER'S writers "know every thing," we take courage and proceed.

us, to commence, put the case of a respectable , with many visiting connections, and with a well nursery (the up-stairs one we mean), holding a n and fruit-garden all in one, without orchard, of one to two acres. In order, also, to bring in a col- n of fruit adapted to the whole year, we will sup- hat the family are at home all or most of the year. ist here be observed, that whatever selection of may be given, or however good they may be in quality, or cropping propensities, no person can to succeed equally with the whole in all situations. is something peculiar in every soil and every situ- which, rendering it peculiarly favourable for the ction of some fruits, in like manner would seem to t for the successful production of some other kind; ow seldom do we hear of a garden being equally nt for the production of all our hardy fruits.

we must, of necessity, occupy another paper, or it e two, with the lists alluded to, as well as with daptations, seasons, &c., we may as well finish y some general remarks which will tend to prepare inds of our readers for what is to follow. In the lace, we may be permitted to revert for a moment subject of *special root culture*. Those who have accustomed all their days to stick in a fruit tree nd there, will doubtless feel rather alarmed at eremonious procedures. They may rest assured, er, and we speak from long experience, that once ished, trees are much easier managed by this mode y any we are acquainted with. We will engage f this advice be followed for three years, the trees almost prune themselves afterwards. We have row of pear-trees on the table trellis system, and have been established for at least eighteen years. ems of many of them are nearly two feet in cir- ence, although only fifteen inches high, and these orne abundantly for many years. The row is 240 length, and we will engage that a common er shall prune them in a dozen hours.

It will be remembered, that we advised in the event of *wide borders*, a trellis on the front portion. The following diagram will tolerably well represent the occupation of the border by the roots when the trees are established:—

Horizontal section of a portion of the wall border, showing its entire occupation by the roots of the fruit trees.



N.B.—The dots denote the position of trees.

Thus it will be seen, as above, that the whole border will ultimately be a mass of fibres, freely ascending to the surface, and wholly unmolested by the spade. This is just as we wish it to be; and provided the border, or rather the stations, are rightly prepared, that is to say with soil of a proper texture, we will engage that with a slight annual top-dressing, in the end of April, the trees shall continue in prosperity with the least possible amount of labour for at least twenty years—if pears, for double that time. We are here, however, averaging the whole—pears, plums, cherries, apples, &c.

A garden thus established must, at all times, be a source of the highest gratification to its owner; everything would appear systematic in the very highest degree—everything carries a *direct* and *special* meaning on the face of it. Here would be no mangling of the delicate fibres of the fruit-trees, in order to carry out the culture of a few peas or lettuces. All will be like a well executed map; and where the garden line was stretched this year, in order to carry out cultural operations, there it may be stretched for a similar purpose ten years hence.

ROBERT ERRINGTON.

THE FLOWER-GARDEN.

ICEBERGS.—As we gardeners have the credit of giving fanciful names to all things belonging to our craft and calling, and then take on ourselves the trouble of explaining our terms by means of new dictionaries and glossaries, there can be no valid reason why a heap of ice stored up by our industry, in lieu of the old pent-up icehouses of the last century, should not be called in our books an *Iceberg*. If it be objected to on the ground that in Germany they say a *berg* when they mean a hill, we may advance a precedent from the conventional language of arctic and antarctic navigators, who, when they see or meet with mountains of floating ice, reduce them to the size of common hills by calling them by the name I have adopted. Icehouses, like the Linnæan system of botany, are already falling into disuse, and are reckoned as things of the eighteenth century rather than of our steam-going days; but they answered their respective ends very well, and paved the way for a more economical order of things. *Monandrias* and *monogynias*, it is true, are still very well suited for the nursery and for short country walks; and so are icehouses, when they are allowed to stand as parts of our cellars. But where can a publisher be now found who would risk his capital on a book of twenty-four classes of plants, or an architect who would chill his fingers in planning an icehouse? Nowhere. Icehouses have had their day, and *Icebergs*, which are within the means of all who can afford to cool their wines and creams, have now usurped their place. Poor old Cobbet *smashed*

icehouses, and showed a far better and economical way of keeping ice in his "Cottage Economy." Economy, according to Cobbet, means good management; and the way they manage their ice in Long Island, in America, suggested to this writer the way we all now adopt in large places to secure large quantities of ice from one year's end to another. The only difference between our present system and that recommended in the "Cottage Economy," is an improvement on his economical ice-house; and what is not a little singular, Mr. Fortune, in his "Wanderings" in China, found Cobbet's plan of keeping ice carried out almost to the letter amongst the Chinese, who, no doubt, adopted the plan many generations before the rest of the world ever heard of such a place as America or Long Island.

I had a long letter the other day from a gentlemen at Norwich in anticipation of this my promised article on ice and icehouses, in which he suggested all the usual precautions we took in filling the old icehouses, and stopping the passages with straw to keep them free from air-currents, &c. Even these precautions were entirely on a wrong principle, as I have shown two years since.

Currents of air to carry off the vapours arising from the slow melting of the ice is the prime consideration in ice-keeping; and confining the passages by any means to prevent the escape of these vapours is a fertile source of waste and extravagance. Those who have read the way in which this was proved and explained, may be curious to know whether we have since made any alteration or improvement in the plan. To which I may reply, none whatever—there has been a strong current of air passing over the icehouse here day and night, summer and winter, ever since; but some have misunderstood the plan so far, as to suppose that the air-currents are allowed to reach the ice itself, which is not the case. That, indeed, would be worse than the old mode of stifling, by which so much ice was formerly wasted. There is a close covering of dry straw over the bed of ice, three or four inches thick, and the air enters above the straw from two opposite sides, and passes off at the very crown of the arch which covers the ice-well, and through which the pounded ice is thrown in when the house is filled, which is a great improvement on some icehouses, where the ice has to be thrown in through a side passage. This opening at top is a circular hole two feet in diameter, and when the house is filled, or, rather, nearly filled,—for we leave an open space at the top for the air to pass freely through—a strong wooden lid fits into the opening, and is covered over with coal-ashes a little higher than the surrounding ground, in order the better to throw off rain and snow-water. The way air is let out, is by fixing a tube of four-inch bore into this lid, the top of the tube standing two or three inches above the covering outside. Like all the old icehouses, the part to hold the ice is made circular up to a given height, and then doomed-over with an arch. At the springing of this arch a hole was cut through the outside bank, and through the bottom of the arch into the ice-well; in this was fixed earthenware pipes a foot in diameter, with a close iron-grating placed against the opening outside, to guard against the visits of rats, mice, or any other creature that might take a fancy to look in and taste some of the good things preserved above the ice; as, in truth, we never draw a bucket of ice from this house at all, it is used only as a second larder, and is generally supplied during the summer season with the best of such good things as are to be met with in the larders of the wealthy in the land, and for which things rats, and other animals belonging to the race of mammals, have a strong predilection in these close times. The passage to the ice-well has two doors, and a third door leads from the end of the passage into the middle of the door over the ice. This passage with us is quite free, and small openings are made in each door to let in the air, so that a free air passage is allowed from opposite sides of the well, and a quick current is caused by the top opening through the lid; any damp or vapour, therefore, which may arise from the melting of the ice below, rises through the covering of straw, and is carried out immediately by the rapid current. This goes on, as I have said, from year's end to year's end; and nothing in the way of keeping in sunk wells, that I know of, answers better. Before we adopted this plan, the house was so close that the ice melted away too fast, leaving the house almost empty before the game season came on; but now it is otherwise, we have not seen the bottom of the well since we opened these air passages. Therefore, if any of our country readers are in a fix with old-fashioned icehouses, I can confidently recommend this way of remodelling them; but, unless I am pressed very hard indeed, I shall never recommend to any one to build an icehouse from the foundation, for of all contrivances they are the most unsatisfactory things that one can take in hand, besides being very expensive to get up.

Now, although it is the practice in all large establishments in the country to have the icehouse under the care of the gardener, in our COTTAGE GARDENER establishment I am not head gardener, only pottering among flowers and flower-beds; therefore, I take it very hard—besides being out of my proper place—to have been pressed to chill my fingers with this slippery article; but I dare say it only serves me right for the quantity of shoe-leather I have worn out, sliding on winter ice and summer snow, when I was a philosopher.

This is the way to do the thing on scientific principles: when you see a wreath of snow in the bottom of a sloping valley (in the Highlands), you advance down the side until you are within twenty yards of the snow; you then quicken your step a few paces, then a run, till you get the hindmost foot on the snow, then away you go in the direction of the slope; and if you do not get a tumble down, you may reach over so far before the end of the slide. All this time the body must be kept on the centre of gravity, otherwise a sore elbow, or a bump on the back of the head is inevitable. Even in our play we might often learn some useful lessons, and the first thing a stranger to this kind of exercise would learn, is that the sun in our climate by his fiercest rays has no power to melt, or even to moisten *the surface* of a snow wreath, except just at the edges where it touches the bank on either side; the greatest accumulations of snow being always found in the bottoms of deep hollows, in the northern side of high mountains. But it is far otherwise *under* the snow, where the sun cannot penetrate, and where the air finds no passage to carry off the damp close atmosphere, which makes a fearful havock with the under side of the snow, just as confined air has been doing in our icehouses time out of mind. The principle is exactly the same in both cases; and I recollect, as if it were but yesterday, the days when I used to mourn over, or rather under, a favourite wreath for playful exercise, when about the end of August it had so worn from below, that it was not safe to trust oneself on the hard surface without risking immediate destruction.

But to bring this light reading to bear on the question in hand: we have seen that not only the air in contact with frozen snow, but the fiercest rays of the sun in July, has not the slightest influence in melting it, while in the dark caverns, forty feet, it may be, below the surface, the melting is so quick and the showers of melted snow-water so powerful, that you might as soon venture to find your way into the hollows in the rock behind the spray at the Falls of Niagara, as make your way under a vaulted arch of snow in the month of July. I have seen it so hundreds of times, in the highest mountain ranges of the Highlands; and now I can see as clearly as can be, that if a Brunel or a Stephenson were on the spot to

drive a tunnel under the wreath, up through the valley, and so let in a strong current of air, which would carry along with it all the moisture as fast as it was disengaged from the sides of the tunnel, a hard crust would soon be formed on the under as well as on the upper surface of the snow, and the mass would stand as long as the present order of things remain as they are. Here, then, is a solution on a larger scale of how a current of air made to pass over a mass of ice in Suffolk, preserves it from waste or destruction; and how a contrary mode of management, or rather mismanagement, had thrown aside the use of icehouses altogether at the present day. And now to our icebergs.

"Catch your hare and then cook the beast," is a trite proverb, but you may catch your ice and pack it too, in the best possible manner, and yet you may not succeed in keeping much after all. If there are leaves or broken sticks on the ponds and lakes, and we get them in our ice, we can no more keep it than if we placed the lumps on hot gridirons. A little stick not bigger than my pen-holder will make for itself a whole chamber in the centre of an ice-well or iceberg; and as the vapour must accumulate, the ice melts away in an increased ratio; therefore, the very first look out should be on the waters, whence the ice is to be drawn. All that being settled, we shall rest on our oars till our little craft is fairly fixed in two inches thickness of clear-as-crystal ice, then, and not till then, is the proper time to sound the horn and gather all our strength to the side of the water; one set of stout fellows are to be provided with fish-hook-like instruments, barring the barb fixed at the end of long poles, like those used by the "lancers," only to be as long as the men can use; another lot of men are to be provided with stout clubs to smash the ice into such pieces as a third set can conveniently raise on common hay-forks, and tumble into carts backed to the very edge of the water. After a while, the ice round the sides is all disposed of, and on its way to the iceberg; and our little boat is also disengaged and ready to carry out a clubman and a hooker; the former gives a blow to the ice with his weapon, and the man with the long hook harpoons a large sheet of disengaged ice, and the boat pulls the whole to the shore. Here the clubmen do their duty, and the forkmen soon follow, and the coast is clear for a second haul, and so on, till the gardener at the iceberg says—"enough," for this season.

In the face of all "temperance" people, those engaged in this sloppy and pummelling work will not long keep their tempers smooth without something hot, with a spoon in it. In Scotland they give them raw whiskey, and make them as wild and frantic as the little boys who handed up the red hot bolts for fixing the tubes of the new Menai Bridge; and instead of breaking the ice, they sometimes break more valuable articles, even to the cracking of bones and such things; but here in England, where bones are of more value, they take better care of the whole framework—bones and all, and give the men good wholesome home-brewed, right hot off the fire, and some ginger grated into it: and a very grateful beverage it turns out; and most grateful are the poor fellows for it,—and to see them toasting the crust of a "brown tommy," and plunging it into the midst of a ten-gallon can, is enough to warm both sides of a philanthropist through and through.

The making of an iceberg is the simplest thing in the world. It *must* be made sugar-loaf fashion, with the broad end at the bottom of course. I have built them with perpendicular sides up to seven feet, and then sloped in the top like a corn stack, but the plan is not so good, or is it so easily thatched, as when made in a regular cone from the bottom upwards. There are several ways of doing this coning of the icebergs. When the site is on level ground, the carts must be emptied as near to the cone as that the ice when broken can be conveniently thrown on with shovels, and then two or even three places round the cone may be used for breaking the ice; but the easiest way is, when the ground or site is on the face of a bank, or at the bottom of a gravel or chalk pit, as in that way the carts may be emptied on the top of the bank, broken there, and then thrown down the bank, so as to empty itself on the cone at once. This is the plan we have adopted here for the last twelve years. A natural hollow was chosen for the site of the iceberg, and the bank on one side made as steep as we could; and at six feet from the bottom of the bank you meet the outside of the cone when it is finished. Some such space is necessary between the bank and the ice, to get rid of rain or snow-water running down the bank before it gets to the ice. At the bottom of the bank, and half way up, posts are let into the ground in pairs, four feet apart, and braced together with a strong piece of timber set across, as builders do their scaffolding; then our garden planks for wheeling on are made into a long trough, inclining from the top of the bank, and resting on those cross pieces; the bottom of the trough being carried out to near the centre of the cone, and far above it; the ice is broken on a platform of boards at the top of the bank, and thrown into the inclined trough, and down it rattles, falling just over the cone. Nothing can be more simple. A set of men are now put on the cone to distribute the broken ice as it falls from the spout, and one of whom is the master builder: he sees the cone brought up as regularly as if he were a professor of conic sections in the university; and when the ice reaches the height of the bottom of the spout, the planks are re-arranged so as to allow room for throwing off the ice as fast as it comes down; and, finally, when the cone is finished into a sharp point, the whole is left till the *first frost* after mild or thawing weather; and the reason is this—as soon as it turns to rain or thaw, the outside of the iceberg begins to melt a little, and sometimes it remains so for three weeks, but on the first hard frosty night the whole is frozen over again, and the outside of the cone is then as if it were one solid face of rugged ice, and now is the time to thatch it with good long straw, and about the same thickness as you would a wheat or barley stack, and no more, *provided* you have cheaper materials to give it a good thick covering afterwards. Here, we use large quantities of leaves, and nothing else, over the straw; we throw it on at intervals, so that the leaves do not heat by putting too many on at once. The depth of covering over the straw is sometimes twice as much as in other seasons, according to the quantity of leaves on hand, but I could never make out that two feet in thickness preserved the ice better than one foot. One thing I did not expect to find out is, that we never had the ice uncovered by high winds blowing off the leaves, and we never put anything on or against them to keep them down.

Perfect exemption from wet or damp is necessary for the bottom of an iceberg; and a few pieces of rough wood, placed on such a place, and covered with brush-wood about a foot, and that again covered with six inches of straw is the way we do here. The brushwood and straw are soon compressed into a few inches in thickness by the weight of the ice; and as the ice melts, the water passes through, without hindrance, into cross open drains at bottom, and soon into a bed of white sand.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

VENTILATION—LOW TEMPERATURE AT NIGHT, &c.—When the exhausting effects of a high temperature at night come to be fully seen, two economical advantages will arise; the first is, that provided air is given *early*

in the morning, if not left on all night, less trouble will be necessary, in ever and anon increasing its quantity—as a considerable rise from sun-heat in these circumstances will be beneficial rather than injurious. The second advantage is, that less fuel will be required; a matter of considerable importance. Thanks to the improved modes of heating—some of the most ticklish of gardening operations are reserved for our amateur friends, who *will* have early cucumbers with the assistance of their dung-beds only.

As low temperature at night is here a fruitful source of disaster, let us describe how it often happens. The plants are doing well, a sudden and severe frost comes; hurry-scurry, but not without method or forethought, fermenting material is piled round the box or pit, and coverings are put over the glass in the most approved fashion; and the enemy is thus shut out, and safety reigns within. It is right, aye and good, for us to be aroused by the sight of an enemy; it is dangerous when that enemy retreats to repose upon the laurels of self-satisfaction and indolence. During the frost, the plants would be healthy and luxuriant; the temperature at noon, even with a sufficiency of air, would be 80° or upwards by sun-heat, and though most of the air was removed early, and coverings early put on, the plants would never grumble, though the temperature stood at 60° in the morning, though the grower might fret right loud about it. But now the frost goes as suddenly as it came; is the treatment changed likewise? Dull foggy warm weather succeeds the frost with its sunshine; *that* of itself would have the tendency to render the plants weak and watery. The temperature by day ranges from 65° to 70°. The linings used for the exclusion of cold are now rapidly fermenting and transmitting their heat. It has neither been deemed necessary to remove part of them again nor to pull them back from the sides of the pit or frame, or even much to lessen the amount of covering; nay, the good man congratulates himself, that if his temperature is not *very high* during the day, it is nearer 80° than 65° when he uncovers in the morning; and in his mind's eye he is already cutting twenty-inch cucumbers on Easter Sunday. But a season of clear weather again succeeds the dull and foggy. What renders so buoyant the spirits of the gardener must be equally grateful to the pets over the dung-bed. Without thinking of the suddenness of the change, without dreaming of a shade, he clears the glass of every spot that would obstruct the light, and gives as much air as will prevent the temperature being unduly elevated, forgetting that in certain circumstances the effects of *very hot* and *very cold* air are almost analogous. He returns to observe progress, and is astonished to find every leaf flagged; the edges of many of them turned up and scorched, as if with a hot curling-iron, and their surface in many places as smooth and shining as if a huge snail had left the marks of its trail. If by a close moist shady atmosphere, he so far recovers his plants, it is so long before they escape from their debilitated state, and their watery condition renders them such an agreeable repast for hosts of insects, that, as a question of profit and loss, it might require some ingenuity to decide between the cost of the tobacco for fumigating and the worth of the cucumbers. Had heat been regulated by light, had the chief stimulus for expansion been associated with the chief agent for the assimilation of solid matter, fewer precautionary measures would have been necessary, and failures less likely.

Exactly similar results follow similar causes in our hothouses, greenhouses, and cold-pits, though the evils are less quickly perceptible. Hence, I have uniformly recommended the *disuse* of fermenting materials for placing round pits and frames for half-hardy plants in winter, not merely on account of the damp thus fostered, but because weak sickly growth would thus be encouraged. If necessity at times forces its adoption, it should eit removed when the occasion for its use has passed, presence counterbalanced by a plentiful supply during the night. "Then what is the definite rul would give us for the temperature of our plant-hou say some of our younger friends. No definite rul this: *regulate the temperature within by the light temperature, and moisture, in the atmosphere wi* As an example: here is a warm greenhouse; w nothing of its ventilation in summer, because th can scarcely have too much,—our remarks apply chi late autumn, winter, and early spring. Its averag perature is 45° at night, and 50° during the day, rise of five or ten degrees from sun-heat, with ple air when the weather was mild without, especia autumn, but a more limited supply in spring, be the air is then generally much drier and colder. supposing, that instead of an external temperature ing from 33° to 45°, we have ten, fifteen, or more d of frost, shall we keep up the same temperature and day, and give air on similar principles. N stead of increasing the fire, we will, if at all conve cover the glass of at least a portion of the house thus so far retard the radiation of heat, and the densation of moisture in the atmosphere within; that is not practicable, we will, rather than roas plants, allow the temperature to fall five or eight d at night, and in this there will be a great advanta if the sun shines brisk the following day, it will t much of its unaided heat to raise the houses veniently high, that but a very limited portion will be necessary; and the less that can be done the better; for cold air in frosty weather deprived moisture by congelation, is very scorching and de tive in its effects. Rather than give much air in circumstances where tender plants are concerne would prefer shading for a time. What holds true case of our warm greenhouses, is still more fo true in relation to other houses for plants and fo where the temperature is much higher. This wi ther appear, if we consider,

Secondly. That the capacity of air for moisture shape of vapour is in a certain progressive ratio temperature, and that the rate of the condensat that moisture upon the glass of the building is portion to the difference of the temperature withi that without. Thus the capacity of air for moist 44° is doubled at 66°, and quadrupled at 99°. this in connection with the fact, that each square glass will cool 1¼ cubic foot of air per minute as degrees as the difference existing between the in and the external temperature, and that the mo contained in that heated air will be deposited o glass as dew, and either through the laps find it out of the house, or fall over the plants inside i shape of drip; while the cooled air falls until it r the ground, and is then drawn towards the h medium, again to be heated, and thus successiv fitted to suck moisture from soil, leaves, and stem it will easily be seen that, without counteracting cies, our plants would soon be as debilitated b parting with their moisture, without an equal cha absorbing more, as if they were exposed to the pa effects of a sirocco. Need we wonder that plants from weakness, and that flower-stalks are too ten support their burden! The more open the hou greater the danger from this cause: every volu heated air, loaded with moisture, that escapes, placed in keen frosty weather by an equal volu air, cold and nearly as dry as if it had been baked oven. If the pots are freely watered the remedy is apparent than real: while the stems and leave being dried the soil and roots are being rapidly by evaporation, and that all the more if the

is some recommend, be very *porous*. Air in such circumstances, even in sunshine, should be admitted with caution, and then only at the top of the house; the cold air thus rushing in where the heated air was rushing out would deprive the latter of a portion of its heat and moisture, and thus be ameliorated before it reached the plants. Giving front air in such circumstances, when the external atmosphere is very cold, unless it be heated and moistened before reaching the plants, is often as scorching as if you had held a hot iron near them; and thus the sun is often blamed for what the cold dry air has done. From this cause hard wooded plants suffer most severely, and, therefore, should never be mixed if possible with those possessing succulent stems.

These facts will explain why in severe winters, with very attention to keeping them from frost, our window plants become so languid and weakly, and all the more the more cozily we keep them. When, therefore, we put to the shutters, and doff our thick boots for slippers, and get ensconced with a book near the chimney corner—all so comfortable—instead of bringing our plants near our elbows we should give them the coldest position in the room, provided they be safe, and even then moisten their leaves and stems more frequently than we water the roots. Placing them in the centre of the room when the fire is out, as we go to bed, is a different affair. The importance of screening and shading our early fruit in spring, as Mr. Errington recommends, will thus also be perceived, not merely to save from *cold*, but to prevent the exhausting effects of a *cold dry air*, if the sun was freely allowed to set the fluids actively in motion, even when the roots were comparatively in a torpid state.

Our remarks will be seen to refer to extreme cases in winter and spring, and I have been the more particular because *then* is the season of danger; when the weather is fine, mild, and open, there is but little to fear from either the abundance or the dryness of the air.

"But is there no palliative for such evils without lowering the temperature within?" Yes, and some of these have frequently been indicated.

1st. Judicious covering, as referred to, frequently will so far prevent the radiation of heat and the consequent deposition of moisture.

2nd. Vessels filled with water, set over the heating mediums, would ensure the cool dry air being supplied with moisture as well as with heat.

3rd. Introducing the air by a pipe or drain brought into contact with the heating medium, and made to pass through or over a damp substance before reaching the plants, will be of great advantage in all operations where *nicety* in detail is essential.

Thirdly. Keeping in view these extreme cases, the amount of moisture in the shape of vapour in the atmosphere of our houses must be regulated by the season, and the object we have in view. In all houses where the inside temperature does not greatly exceed the outside, it will be found in autumn and early winter, unless very cold, that the common atmosphere contains a sufficiency of moisture—nay, too much—for those plants we wish to ripen their wood and take their season of rest, owing to the rains that then descend and the heat still remaining in the ground. In the spring it is different; the air is then comparatively dry when the temperature is raised and growth has fairly commenced. Hence proceeds one of the difficulties in cultivating exotic plants from warmer regions; when we require dryness to solidify their tissues, in the autumn, we are often presented with the greatest amount of moisture; hence, in our forcing and plant houses in spring, we supply moisture when growth is advancing by syringing, sprinkling, and evaporating pans, but discontinue the whole when growth is finished and ripening is progressing,—nay, we use artificial heat, with a circulation of air; not because we wish *more* heat, but because we wish the air to be *drier*. Succulent plants, such as *Cactus* and *Scarlet Geraniums*, require little moisture in winter when at rest, either at their roots or in the atmosphere; similar treatment would destroy *Heaths* or *Epacrises*; more moisture and heat, still, is absolutely necessary for such flowering plants as *Cineraria* and *Primula*: hence the importance of keeping different families by themselves.

Fourthly. As to when air is to be given. Keeping in view extreme cases alluded to, and using the preventives to injury even in these cases, I reply, *always*. This will be the case whether we will or not, unless the house is hermetically sealed; the internal air will escape, the external will intrude. But this will not be sufficient; nothing is more prejudicial to many plants than a stagnant atmosphere. With the views here presented I may not give so much air during the day as some people, but I am not the less anxious about a constant change, that, among other reasons, a wider field may be presented for the plant obtaining *carbon* for the building up of its solid structure. Equally important do I consider a change of air at night, in all favourable circumstances, in order that a wider field may be presented to the plant for the inhaling of oxygen, and thus giving an impetus to vital action in the efforts of the following day. Hence I have recommended giving air to cuttings at night; when, therefore, I shut up houses close at night, it is merely a yielding to *economy*, a saving of the fuel heap. A very small portion of air at the top will prevent the accumulation of all noxious vapours; if closely shut up, this opening should be made the *first thing* in the morning, even if the weather should be so stormy that they must be shut up shortly afterwards. When in summer, by means of syringing the paths, walls, &c., and shutting up early with a strong sun, we give our plants the luxury of a vapour bath, we consider it necessary during the evening to give a little air for the night. Once more: in winter we have frequent thick fog and mist; if it continues merely for a day, and you can keep it out by shutting up your house, do so; but if it finds an entrance, or remains for a longer period, as the stagnation which accompanies it would be ruinous, light a fire, or augment the heat of that you have got, and give a little air, and thus you will cause motion in the atmosphere, and change the fog into invisible vapour.

R. Fish.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

Echites.—A genus of stove climbers, possessing great beauty, so much so, as to render them desirable plants for every stove in the kingdom. They belong to the Natural ord., *Dogbanes* (Apocynaceæ), an order that contains many handsome plants, such as *Allamanda*, *Vinca*, *Nerium*, *Tabernæmontana*, *Cerbera*, *Beaumontia*, and others less interesting. They are remarkable for the twisting of their corollas, which is, indeed, the chief essential character of the order. Such of our readers as may be acquainted with any of the above-named genera, may have observed this twisting of the petals, which has been compared to the rays of a Catherine wheel. This peculiar conformation caused Linnæus to name the order *Contortæ*.

In the genus *Echites*, we have selected seven really beautiful species to write upon on this occasion, and we propose on a future opportunity to describe some of the other genera and species belonging to this order.

E. atropurpurea (Dark purple E.); East Indies.—A climber with handsome foliage and beautiful dark chocolate tube-shaped flowers. 3s. 6d.

E. crassinoda (Thick-jointed E.); East Indies.—This

is a favourite plant with exhibitors of collections of stove plants. It has a good habit, neat foliage, and beautiful large rose-coloured flowers. 3s. 6d.

E. FRANCISCEA (Francis's E.); East Indies.—A plant not half so well known as it deserves to be. We saw it very lately for the first time in flower, in the stove at Syon House, where, under the care of the excellent gardener, Mr. Iveson, it was blooming profusely. The flowers are produced on short stems, in umbels of six or eight flowers each. They are of a purplish-red colour, rather larger than a shilling, and more open than any other species of Echites. The foliage is of dark green, and thickly produced on the twining shoots. 5s.

E. NOBILIS (Noble E.); East Indies.—A half shrubby, half climbing plant, with slender stems and handsome opposite leaves. The flowers are produced at the end of each shoot in short racemes. They are of a pleasing pink colour, rather cup-shaped, and are of long continuance, the lowest buds opening first, and as they fade others come forwards, so that before the whole raceme has bloomed, a considerable time elapses. The plant consists of a large root-stock or bulb, which increases in size every year. Messrs. Veitch have imported these root-stocks as large as a child's head. From this root-stock, when so large, several shoots spring forth, and each shoot produces a head or spike of blossoms. In that state the plants form noble objects. In winter, during the season of rest, the plants lose their leaves, and should be kept partially dry and cool. The shoots often become woody, and do not *then* die. These shoots, when the season of growth recommences, will send forth several shoots each. These ought to be encouraged to grow, as each may produce a spike of flowers, but it is not advisable to allow the whole to remain. Two or three will be as many as will produce bloom, and the rest, when wo or three inches long, make excellent cuttings. 5s.

E. SPLENDENS (Shining E.); East Indies.—The bloom of this species is the finest of the whole race, frequently measuring five inches across; it is salver-shaped, and of a delicate pink colour. This colour may be much heightened by being close to the glass, and fully exposed to the light. The leaves are of a light green, almost milky green, as large, nearly, as those of the common laurel, thin in texture, with strong ribs or veins. This is, as well as *E. crassinoda*, a plant much valued and used by exhibitors, because when it is grown in a large pot and trained to a balloon-shaped trellis, it flowers abundantly; and by its large and eminently handsome flowers is very effective. It is also very suitable to plant out in a border of the stove, and train either up the rafters or to a chain lengthwise of the house, which allows a more free extension of the branches, and consequently a greater quantity of bloom. It well merits cultivation. 3s. 6d.

E. SUBERECTA (Half-erect E.); Jamaica.—A yellow-flowered Echites, and of considerable beauty. It is a half climber, with bunches of yellow flowers produced when the plant is vigorous and healthy in considerable numbers, from between the handsome dark green leaves and the stem. The flowers have much the appearance of *Allamanda cathartica*, but the plant is not scrambling like that species. The colour is a bright orange yellow. 3s. 6d.

E. ROSA CAMPESTRIS (Rosy-field E.); East Indies.—A low climber with beautiful rose-coloured large flowers. It is deciduous, that is, loses its leaves in winter; rather difficult to grow. 5s.

Culture.—These plants, like most other inhabitants of the stove, thrive better, and flower more freely, if they have a period of rest. This can be best attained during the dark days of winter. As the year declines in the autumn, reduce gradually the quantity of water, especially to *E. crassinoda*, *E. splendens*, *E. nobilis*, and *E. rosa campestris*, because these species have, as mentioned above, a root-stock which contains a sufficiency of sap in itself to preserve the principle of life through the period of rest. The other species must have a sufficiency of water to keep the leaves fresh, even through the winter. The soil they thrive best in, is a compost of sandy turfy peat three parts, loam one part, and leaf mould or very rotten dung one part; add as much sharp silver sand as will give the whole a sandy character. Mix thoroughly with the hand previously to using. The best time to pot is in early spring. Turn the plants out of the pots and carefully reduce the old ball without injuring the roots; use clean pots and plenty of drainage. The pots should be large in proportion to the plants, to encourage them to grow freely. As soon as the potting is finished give a gentle watering, and, if convenient, plunge the pots in a gentle heated tan-bed. If the trellises are out of order, or likely to be too small, now is a good time to renew or enlarge them. They may be made either of willows or split laths, in the manner described in a late number, when giving directions for the culture of *Gloriosa superba*. They may be formed still better with wire, which should be well painted. Any wire-worker will easily understand the kind of trellis required, if the cultivator describes the kind his taste may dictate. The one we prefer is what is commonly called balloon-shaped, with an open circular ornament at top, rising a little above the main body of the trellis, so as to form a kind of crown to it. This trellis, when well covered with the creepers, looks handsome, and shows off the flowers to great advantage. The weak growers, such as *E. nobilis* and *E. rosa campestris*, require but a small trellis, or even none at all, except a few upright sticks to tie the branches to as they shoot up. They seldom exceed three feet in height. In spring and summer these plants require constant attention to keep them neatly tied in, and moderately watered. They never require flooding, because their roots are extremely delicate, and too much water is apt to canker them, and then the plants become sickly, and in that state are more liable to the attacks of insects, such as the mealy bug, red spider, brown scab, and green fly. The latter will attack them even when in perfect health, and they must be destroyed and kept under by frequent smokings with tobacco. The red spider, and all the rest of insect enemies, must be got rid of, and there is no really effectual means like washing them off with a sponge. Though tedious, this method is sure, and not only not injurious, but actually beneficial to the plants. The syringe may be used frequently with useful results, only keep the flowers from being wetted when fully expanded. The flowering season extends over the months of May, June, and July, but it may be prolonged two months later, by having a succession of plants to bring into heat as the first section lose their bloom; or, if necessary, the whole may be kept back to suit any particular season that their flowers may be required for.

Propagation.—The whole of these plants may be propagated by cuttings of the young wood, but their increase is difficult and uncertain; nurserymen with skilful hands, a good propagating house, and all the proper means to boot, are not always successful. We shall try to describe the best method, and the means necessary, so that our gardening and amateur friends may, with some prospect of success, try to increase their stock and preserve each kind, should their original plants sicken and die. First procure a clear white bell-glass or two, some pure silver sand, new pots that will just allow the bell-glasses to fit within them, some of the compost above described for the plants of this family, and some broken potsherds of different sizes, but quite clean. Cover the hole at the bottom of the pot with a large piece of broken potsherd, laid hollow, to allow the free escape of the superfluous water; lay upon it some smaller pieces of the same, and upon them an inch thick

some not larger than marrowfat peas; cover this ainage either with a thin layer of peat siftings or moss, prevent the compost from stopping up the free passage the water; then fill the pot with compost to within an ch and a half of the top; this overspace must be filled to the rim with silver sand; give a gentle watering ith a fine rose pot or syringe to settle the sand; and lace the bell-glass upon it to make an impression, which ill show a circle to keep the cuttings within. When this is done, take off the young shoots with a pair of aves to each; cut off the bottom quite smooth with a ery sharp knife, and insert them in a circle just within he marked line; turn the leaves inwards, and keep hem there with short deal sticks; fill up the holes made y the dibble with some dry sand, and give them another ery gentle watering to settle the sand firmly round each utting; then place the pots, covered with the bell-lasses, up to the rim in a tan bed, and shade them rom the sun with sheets of white paper or an old news-aper. Should they become dry, take off the glasses arly in the morning, water gently, and allow the glasses o remain off for an hour to dry the leaves, then replace nd shade. Continue this care and attention till signs f growth are visible, and as soon as it is judged roots re produced, examine them by very carefully turning he ball out of the pots; if rooted, pot immediately into mall pots, and place them under hand-glasses till they re fully established; then harden them off gradually, nd give them the usual culture.

FLORISTS' FLOWERS.

Our space is full, but we need only say that the care nd attention mentioned in late numbers must be dili-ently continued. Next week we will enlarge upon this art of our pleasant labours more fully.

T. Appleby.

THE KITCHEN-GARDEN.

All spare ground that has not already been drained hould, if needful, be attended to at once, previous to aking on the manure and trenching. Various depths re recommended for draining the soil, but in our opi-ion this should be regulated by local circumstances, as t cannot be laid down for a decided rule that one stated epth would answer equally in every locality or on every ind of soil; but we recommend for gardening in gene-al, if a suitable staple of earth is chosen, and a sufficient all at command for taking away the superfluous water, hat the drains should be laid at least four feet in depth. arious materials have been made use of for draining he soil, but there can be no doubt, that pipes are the est when properly laid in; and if a foot of rubbly tones can be placed on the top of the pipes without uch additional expense, so much the more perfect, sub-antial, and lasting, the draining will be. Wherever drains have to pass near hedge-rows, or within even a considerable distance of trees, the joints of the pipes should be very securely cemented together; for if there is the least cavity for the roots to creep into, they are sure in a short time entirely to prevent the circulation of the water by their fibres, which will increase until they become one solid mass or wig of roots, entirely fill-ing up the cavity as tightly as if with a cork. No mat-ter how large the drain may be, a small root at first creeping through a small aperture is sure to cause a stoppage in a very short time. We have seen a drain, a foot in diameter, entirely choked and blocked up within the space of one year, where an extensive and powerful stream was running the whole time, in conse-quence of the roots of the elm and other trees finding their way through an aperture no larger at first than a thread.

Walk Making.—Where this requires to be done, and where old walks require to be put in order by turning and casing, the present is a good time of the year to get it done; as, if put off till the spring, when plenty of other operations need attention, it is more difficult to find the time to perform it. If it is intended to case walks, either old or new, with a finer and brighter mate-rial than the foundation, they may be left till the season is further advanced. The edgings of all walks should be made up evenly, of whatever material they may have been previously formed, with slate one inch thick and three inches deep. Slate, where it can be obtained cheaply, is a most durable and neat edging for kitchen-gardens, affords no harbour for slugs, and is always neat and clean.

Routine Work.—Persevere in laying baits of brewers' grains, or fresh, or scalded bran where grains cannot be commanded, for catching slugs whilst the weather continues mild; by which means a garden may be cleared of such pests previous to their hiding away in the cracks of walls and fences, and fissures, or worm-holes in the earth, whence they will emerge with their broods in early spring, in time to assist in the clearing away of all small plants and young seedlings, as well as every kind of vege-table, &c.

Attend to all previous directions with respect to wheeling out manure, trenching, surface-stirring, keep-ing the growing crops clear from decayed leaves, and dredging the frame crops of *carrots*, *radishes*, *lettuces*, &c., occasionally, while the foliage is dry, with charred dust, or dry dust of some kind; such attention will ensure vigour to the crops, and keep them free from mildew, canker, &c. Keep the growing *cucumber vine* pretty thin and carefully trained; allow but few fruit to swell at a time:—Keep up a kindly atmosphere about them, neither over heated nor charged with too much humidity, but regulate such matters with moderation whilst the days are short and dark. Sow a few seeds of a good early *melon*, and place in heat pans of *mint*, *tar-ragon*, &c. Attend also to the succession of *sea-kale*, *rhubarb*, &c., as previously directed. James Barnes.

MISCELLANEOUS INFORMATION.

SCALES OF EXPENDITURE.

By the Authoress of "My Flowers," &c.

Estimate 7th.

Income—6s. 6d. per day; 39s. per week; about £101 8s. per annum.—Provisions, weekly.

	£	s.	d.
Bread and flour for five persons, 24 lb	0	3	6
Butter, 1 lb	0	1	0
Cheese 6d. and milk 1s.	0	1	6
Tea ¼ lb. @ 3s. 6d.	0	0	10½
Sugar, 2 lb, @ 4d.	0	0	8
Grocery, including oatmeal, rice, &c.	0	0	10½
Butcher's meat, bacon, fish, &c.	0	4	6
Vegetables, fruit, &c.	0	1	6
Beer (9 gallons per month, @ 6s.), and porter occasionally	0	2	9

	£	s.	d.
Coals (2½ chaldrons a year, @ 48s.), and wood, 2d. per week, average	0	2	3
Candles, on an average all the year round, per week	0	0	4½
Soap (½ lb per week on an average, @ 6d.), starch, and blue	0	0	5
Sundries, for cleaning, scouring, &c.	0	0	5
Total of household expenses ..	1	0	7½
For clothes, &c.	0	6	6
Rent	0	4	6
Schooling, and incidental expenses	0	1	9
Total expense	1	13	4½
Saving (more than 1-12th)	0	5	7½
Amount of income	1	19	0

By maintaining the same quantities and prices for the articles of butter, tea, sugar, and candles, which have been allowed by my calculation in the previous Estimates, and which are, as I have before stated, less in each item than in the original, the difference in saving between my Estimate and that from which I transcribe it is 2s. 4½d. This is a material saving in one week; and the proportion has been very much the same in those already given. But as incomes enlarge we are readily disposed to think our expenditure may enlarge in the same ratio; and by this means we seldom find the benefit we might do from easier circumstances. With £100 per annum, if we practised in non-essentials the same self-denial that we did with £70, we should find ourselves in pocket at the end of the year; and the increase of income is yet so little, that it does not justify our indulging in any material point, beyond that which was allowable in the earlier Estimates. If any increase may be considered justifiable, it is in meat and firing, because warmth and a fair supply of animal food, if they can be *lawfully* enjoyed, are beneficial to health; but we should very narrowly and keenly examine our circumstances and ourselves before we relax any of our rules. I do not mean to inculcate parsimony and illiberality—nothing is further from my thoughts, but with small means it is our bounden duty to expend them well; and nothing that savours of self-indulgence can be termed doing well. The future, and indeed the present, wants of children should be most carefully provided for; education is always a heavy expense for boys, and it is also one of extreme importance. Daughters may be brought up and trained by their mother's side; but it is very rarely that a father can conduct the education of his sons; and a good *general* education for the sons of the poor, among the upper classes, prepares them well for whatever situation may offer, when their age permits. It is far better to lay by any overplus for such a purpose as this, than to spend it upon present gratification, however lawful it may appear.

There is one item which I have always inserted with extreme reluctance, because it appears to me to be wholly unnecessary, as well as very expensive—I mean beer. At the lowest computation 1s. 2d. per week is allowed for beer; and in a weekly income of only one guinea, what a serious sum is this! and what a considerable addition it would make to the little portion saved each week from the narrow means! It is so much the custom of the present generation to fancy they cannot live without beer, that in every Estimate, however small, twopence a day is quietly set apart for the purpose, without a thought being given as to the propriety or possibility of doing without it, and to very many even that allowance will seem distressingly small. But when we look round among the labouring classes, and see how well *steady* men work, and work for years too, without tasting beer, the better classes need never complain of the deprivation, whose food is of so much more nourishing a kind, and so much less limited in quantity. I am not now alluding to those whose constitutions, from delicacy or disease, require a degree of stimulus, and even in such cases I think it probable that other treatment would produce a far more beneficial result; but I am speaking of those whose health is good, whose strength is in full vigour, and whose means and families demand that the strictest economy should in every thing be maintained.

I have frequently been disturbed at hearing ladies whose worldly circumstances required no exertion, and who had not even the fatigue of a young family to encounter, say, with the utmost seriousness, "Oh, I must have *my beer!* I cannot get on without *my beer*," and at the same time wonder why they always felt oppressed and uneasy after their luncheon and dinner, and so frequently suffered from disordered stomachs. So coarse and heavy a beverage can rarely be needed for "my sisters." Those who are in the habit of using it would feel themselves immeasurably benefited by its discontinuance, and where expense is to be strictly avoided, scarcely any article can be so conveniently and profitably dispensed with. When the mother and children are practising the utmost moderation in the use of food needful and proper, and the father is indulging in that which is, at best, superfluous, there is a wrong principle evidenced, and want of thought, *at least*, is strongly apparent.

For the benefit of those whose health *absolutely* requires a stronger beverage than that sweetest and simplest, and most wholesome element, water, I will in my next paper give a receipt for a cheaper and far less mischievous beer than that which can be purchased, or is usually brewed at home: but I earnestly desire to impress upon *my* particular readers the entire practicability of doing without it, and the very few cases in which it can ever be considered as either necessary or useful.

VINEGAR PLANT.

I have used it for several years, and think it far exceeds any vinegar I can purchase in flavour. We pickle with it radish pods, onions, cabbage, vegetable-marrow, cucumbers, &c. It may, perhaps, be useful to some to know that we have found it much improved by boiling one stalk of rhubarb in the water when making it.—T. THORPE.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

OYSTER PLANT.—We had dozens of applications for the seed of this, many of them without postage stamps; and we take this prominent opportunity to say that we never had any of the seed, and that if our correspondents had read attentively they would have discerned that the lady who applied, as noticed at page 106, wished some one would *send* seed to us for her.

FLOWER-BEDS (*F. X. Y.*).—The composition of your flower-garden is exceedingly good and rich, and the planting no less so. Beds 19 and 29 would be much improved by a patch of the *Gladiolus psittacinus* between each moss and cabbage rose, and would look gay after the roses were over; or if every other rose in 19 was *Geant des Batailles* and *Baron Prevost*, the same in 29, you would have the nearest colours to the roses now in use, and flowers to November. The *Baron* is nearly as sweet as any of the old roses. 21 and 25 might be emptied late in July; the *carnations* would easily transplant, and *Tagetes tenuifolia* just coming into bloom transplanted, and these would be very rich till hard frost set in, and would always carry the eye across the garden in that direction: threepence-worth of seeds sown in the kitchen-garden about the first of May would fill them. *Emma* and *Barkerii* do not look well together: they want a brighter colour between them; we would change *Amethystina* from the opposite side for one of them. What a splendid mass you have collected into this group, and how well 18 and 17 balance them, and the whole garden. You are not an apprentice in planting flower-gardens, at any rate; but what a slow process to learn! 14. Plant one half of this bed with *Verbena Amathystina*, or, which is better, *Duchess d'Aumale*, that is, every alternate plant save the outside row; and when you see the effect let us hear how you like it. Your plan of writing the names of the plants, and the numbers on the beds, makes it the easiest to us; and a list of names on the corner of a plan is the next easiest.

FLOWER-BEDS (*Y. Z.*).—You have confused your list by writing it higgledy-piggledy in the body of your letter. Always write the names of the plants by themselves under *a b c*, &c., or 1 2 3, or put the same letters or numbers on the beds; but F. X. Y.'s plan, as above, is the best, as then one can in imagination almost see the plants growing. Your garden is on the true geometrie Dutch style, and a very pretty example of that school, and always the easiest for beginners to plant. Planting *standard roses* (3) in the centre of intersecting walks is new to us, but we like it much. The *Irish yews* (1) are also much to our taste. You must keep the *rhododendrons* (4) in neat trim to harmonise with the rest. *Antirrhinums* will live out the winter, unless your ground is wet, and so will *Penstemons*. The centre group (J. K. N. O.) are the beds

roses, and nothing with them. A. X. D. W. should be of *scar-* *bright red*; the rest will do as you propose, but it might

BERRY FORCING (*Y. R.*).—Place your strawberries in the cool near the glass as possible) until the new leaves appear. Then hem to the "further house," which you keep about 60°, yet ise only 55° by day and 45° at night, by fire heat. Let the tem- rise to 75° occasionally, during sunshine, for an hour or two hen the bloom truss arises give plenty of air, and be sure to n close to the glass. As soon as the fruit is setting apply liquid t every watering; let it be *very weak* and very clear.

R-GARDEN (*H. P.*).—Unless your *scarlet geraniums* are Tom we would plant them in A, and change the *verbenas* to D. The nts should meet you first coming down from the house. The s and *English Iris* in bed B are summer flowers, the former g the iris in bloom; both must remain to the end of July. In *pinks* might remain, and cuttings of the *heartsease* struck early ing, or half the old plants divided and cut in before they bloom would go on blooming all the summer. C and D ought to be h mixed plants—such as *Phloxes*, *Penstemons*, *Campanulas*, *psittacinus*, and *Œnotheras*, with low annuals near the sides. ıtiful a collection of the old *fancy geraniums* you might grow F; just the place for them—such as *Diadematum*, *Lady Mary* *Rouge et Noir*, &c. K. A row of white *phlox* all along e espalier would hide it in part, and look remarkably gay as a nd. The *annual coreopsis*, of sorts, would also find food enough f the *phloxes*; and the annual *Œnotheras* or *Goodenias* are of our in poor soil. They would do next the walk in K border; hole of the steep bank G we would sow with *mignonette*, at the arch, to get established before the hot weather sets in.

R-BEDS (*E. L. H.*).—We are sorry to say that our contributor dvise as to *new* beds, or the *altering* of old ones. He says he ned the art of cutting out new beds, and that every one has a hoose what shapes best suit their own ideas. What he has pro- lo is to give advice as to any alterations he might deem necessary anting of beds already existing, or a set of beds already in He also adds, he never yet heard of a single individual who ase a second party in the shapes of flower-beds. Your *moss* better remain as they are, on the principle of "let well alone."

NG ROSES (*Eyre*).—No climbing rose is so good for pillars as een ones already noticed; and they are the best sorts to bud s on after they are once established. *Laura Davoust* and oses, together with the single *White Musk* rose, flower in the but, with the exception of the *Davoust*, what are they worth? m is as good as another. There is no really good climbing rose erpetual bloomer. It is true, the *Crimson Boursault* will some- er in the autumn, and is a fast growing rose; and *Ruga* runs thing, and blooms for three weeks; and no rose can be worked of its own class. *Thorn hedges* can be removed certainly, but one well; it is best to cut down one-third of the older wood.

S SPECIOSISSIMUS (*J. N.*).—The one flower so far swelled we w allow to open, but give no water, and would keep the plant the other flower-buds may not expand until spring as you t will be forward then, from its appearance now. When you eat, you must give water at the roots; but previously to that, ns are at all shrivelled, let them be moistened frequently in rs.

E PSEUDO-ARMERIA (*Ibid*).—We fear this is not hardy enough en air in winter in the north of Ireland. It should have the e or a cold pit; but if you have two plants, try one in a dry l planted on a raised mound, in rather poor soil, and report to ult.

RING GARDENIA RADICANS (*I. V.*).—This may be kept in a y warm greenhouse in winter and rather dry; but to have it in riance, it must be transferred to a sweet hotbed in March or flourishes in sandy peat and loam.

HARDY FRUITS (*T. M. G.*).—We select the following, and n in the order of their ripening:—*Peaches*—Acton Scott, Royal Grosse Mignonne, Walburton Admirable. *Nectarines*—Violet Hâtive, Elruge, Newington. *Apricots*—Blenheim or Shipley's, Moor- park. *Plums for Outdoors*—August Muscat, Burgundy, Lashmar's Purple, Fontainbleau. *Cherries*—Early Duke, Royal Duke, Morello. *Apples*—Red Juneating, Kerry Pippin, Ribston Pippin, Nonpareil's Kernel, Lamb-abbey Pearmain, Sturmer Pippin. *Kitchen* *Apples*—Hawthornden, Mank's Codling, Dumlow's Seedling, Northern Greening. *Pears*—Jargonelle, Dunmore, Louis Bonne of Jersey, Beurré Diel, Beurré Bosc, Seckle, Gheilis, Glout Morceaux, Beurré Rance.

R-GARDEN (*A Lover of Flowers from Childhood*).—Pray care that the winter covering over 6 is dry and thick enough to the frost; and let us hear how the *Daturas* look next summer: xactly in the right place. 10, a basket of *ivy* filled with *Scarlet* *s* and edged with *White Ivy geraniums* is the best thing in the 7, a constellation of *fancy geraniums* in the recess between 5, s uncommonly well managed. There are no good sorts of this different colours. The next best four to *Diadematum*, is *um rubescens*, a redder sort; *Lady Mary Fox*, orange scarlet, and black; *Spleenii*, striped flower, like *Sidonia*, but a better grower; *Quercifolium*, a good low red sort; and *Rouge et Noir*, red and black, as the name implies. This and *Spleenii* require poor soil to keep them down to the size of the others. There are no good white or whitish yet in this class. 11, 12. 13, very bad indeed—no meaning. Knock out 11 altogether, and make a group of six beds, same shape as 12 and 13, with the points to the centre, and the outsides forming a circle. 15, plant a hedge of *Fuchsia gracilis* across the border wherever you wish the grass to end, but on no account turf the border. 18 is too much in the shade for an edging of *Nemophila*. *Sweet Alyssum* is the best for it, unless you get *Campanula carpatica*. Your other questions next week.

FLOWER-GARDEN (*Devoniensis*).—What a beautiful Italian terrace garden it is! Many thanks for the smallness of the plan, and the little space you occupied in explaining it—ten acres of flower-beds need never, for us, occupy more than *one half page of small post paper*. You need never go wrong in planting 1; and in it we would have a new arrangement of mixed colours every year, but not glowing colours—*Zauchneria* was out of place there last summer: it does not answer that way. 8 and 11 should always have the same colour and same sized plants; white *Campanula carpatica*—the best plant for both. 8 and 16 should also be of the same colour and height, and different from the white in 3 and 11. *Tagetes tenuifolia* is the best we can think of for 8 and 16. After that, your own planting seems very good; all that we can see is, unless the plants in 13 were pegged down, the bed was too high to match 5. Going down the middle walk, the plants on both sides look best if as near as possible of the same height.

FLOWER-GARDEN (*Subscriber, Bury St. Edmunds*).—Who planted 19 with shrubs? and who proposed 20 and 21 on each side of it? The whole group absolutely frightful, and completely spoils your whole garden as to effect. The oval should have been up near the flower border 22; but, better still, nowhere. We never saw anything in Loudon so inelegant as the shape of 20 and 21. The geometric garden in front of the house is very nice, and so are 16 and 17 beyond; but 15, a young *Deodar*, is entirely out of place; and here is the rule for it:—*A piece of turf in front of a house* (from the size of a dining-room to many acres) *should never have anything planted in the very middle of it*. We would do away with 19, 20, and 21, and plant a high fence of *evergreen roses* on one side of the walk beyond 22; but cannot say which side. 15 we would remove beyond 14, and a little more towards the corner, so as not to be in a line with 14; and on the opposite side, to match it, repeat 14. If more flower-beds are wanted, have them in groups on either side of the lawn. It is quite impossible to say with *certainty* if that would be a good place for a conservatory.

FORTUNE'S PIT (*A. B.*).—There ought to be sufficient heat, unless the materials are too deep. Our bottom heat is 80° on the very same plan, but on a large scale, and it hardly ever varies. Tan, in such small quantities, is troublesome through the winter, but after February would answer well.

GRAVEL WALKS (*P., Constant Reader*).—We cannot decipher your letter altogether, but from what we can make out we are enabled to say the subject will soon appear in our pages.

ELDER FLOWER WINE.—We have been favoured with five receipts for making this "English Frontignac," for which, on behalf of the inquirer, we return thanks. They are each accompanied by a warranty of excellence, so we publish them all.

No. 1.—To 10 gallons of water add 28 lbs. of lump sugar, boil it well; when almost cold, put in a quarter of a peck of picked elder flowers, and 27 lbs. of raisins stoned, squeeze in the juice of 4 lemons, adding the peel thinly pared, with about 6 spoonsful of yeast; stir all together, then put it into the barrel, and after it has fermented two or three days, bung it close and let it stand six months; then bottle it. Two bottles of white French brandy to be added when put into the barrel.

No. 2.—To every gallon of water add 3 lbs. of lump sugar, boil well together, and clear with the whites of eggs. Have ready picked from the stem, for 10 gallons of liquor, three-quarters of a peck and a pint of elder flowers, and when it is nearly cold pour it upon the flowers and stir well. To every gallon add 1 lb. of raisins of the sun stoned, one spoonful of the syrup of lemons, and to the whole, four spoonsful of yeast; let it work two or three days, stirring it well three times each day; then put it into a barrel with 1 oz. of isinglass and a pint of brandy, close it up well, and let it stand six months before you bottle it. Take care the cask is quite dry when the wine is put in, otherwise it will turn acid.

No. 3.—To every gallon of water 2 lbs. of Malaga or Sultana raisins and 2 lbs. of lump sugar; boil them one hour and pour them into an open tub; when the liquor has cooled down to about the warmth of new milk, stir into it the elder flowers at the rate of a quarter of a peck to every six gallons; the next day work it with good ale yeast, and add to every gallon one tablespoonful of lemon juice; put the dregs into the cask with the wine, and let it stand till it has done working with only a paper over the bung-hole; then bung it down tightly till it has acquired its proper sweetness, which will easily be ascertained by occasionally tasting it; when it has done so, it should be carefully drawn off from the dregs and fined with isinglass at the rate of ½ oz. to every six or seven gallons—the isinglass being dissolved in some of the wine, but not put into the cask till nearly cold; in about ten days it will be clear and fit for bottling.

No. 4.—Ten gallons of water, 30 lbs. of loaf sugar, boiled half an hour, carefully removing the scum; when lukewarm, add half a peck of elder flowers carefully picked clean from the stalks, the juice and thin peels of

9 lemons, 9 lbs. of raisins picked and shred; let the whole stand a week, then strain through a sieve; stir in about a tablespoonful of good yeast, and put it into a cask; when it has done working, bung it up for six months, then draw off and bottle. A little of the liquor must be kept for filling up as it works. It is a beautifully clear sparkling wine.

No. 5. To ten gallons of water (ale measure) put 30 lbs. of loaf sugar, the rinds of 7 lemons pared very thin, and the whites of six eggs well beaten, also the shells; boil it half an hour, pour it into a cooler, and when only new milk warm add three quarts and one pint (or rather more) of elder flowers *shaken* from the stalks; when nearly cold put in half a pint of new yeast, stir it twice each day until the flowers come to the top and turn brown; then strain it from the flowers and tun it. Put into the cask 6 lbs. of Smyrna currants or raisins, the juice of the lemons, and a pint of good brandy, when you close your cask, throw in an ounce of isinglass, let it stand four months, and then bottle it. N.B. It should not be bunged up till it has worked sufficiently in the cask.

BLISTERING OF NECTARINE LEAVES (*Philocarpus*).—We have repeatedly stated that this arises from excessive juiciness or moisture in the leaves, arising either from too great a root-action in proportion to the activity of the leaf in elaborating the sap, or from an excess of water in the soil. Sudden checks by night frosts and easterly winds may exasperate the distortion by rendering the vessels in the leaves still less able to digest the sap forced into them. Draining the soil, or, still better, growing the trees on stations, and sheltering them whilst in bloom and until summer is at hand, are effectual preventives of such blistering. *Peas* sown now in the open ground will not come in earlier than those sown similarly in February, unless the winter prove unusually mild. *Grapes* not ripened may be left on the vine without injuring it; but we do not know your object for so doing—they will not ripen next year. Leave on the large leaves of the *Brussels Sprouts*. Any London seedsman can supply the *Dwarf Indian Corn*.

COMPOST (*A Liverpool Subscriber*).—Your mixture of spent tan, decayed animal carcases, and the cleaning of the lime pits of a tan yard, must be a very fertilizing compost if the tan is also decayed. Twenty tons per acre would be a good dressing with it for both arable and pasture land.

AMATEUR (*Bury St. Edmunds*).—Our correspondent says that the Horticultural Society of that town consider "that person an amateur who attends to the plants he exhibits, and only *occasionally* employs a gardener for the more laborious work," and we consider such a person an amateur *provided* he does not so attend to plants "as a profession, or for pecuniary advantage" (see *Cottage Gardener's Dictionary*, p. 31). Many little florists attend to their plants themselves, and only occasionally employ assistants for the harder work.

TREE ONION.—We beg of our readers to regard the following notice:—"The numerous applications having nearly exhausted my stock, I must defer the pleasure of a further supply until next season. It would facilitate the growth if the small bulbs were potted immediately, and kept in a cold frame or pit till March, and then to be planted in the open ground."—S. N. H., *Bury St. Edmunds*.

CHARCOAL BURNING IN-DOORS (*G. F. W.*).—Charcoal might be burnt in a hall well ventilated, though the stove had no flue, without causing fatal consequences, but nothing can prevent such a practice being unhealthy. Sprinkling salt on the charcoal has no power to prevent the production of carbonic acid gas, of which consist the "deleterious fumes of charcoal." You will have seen your other query answered last week.

PETUNIAS, GERANIUMS, &c., DAMPING-OFF (*J. S. L.*).—This occurs in a small greenhouse where a stove is only lighted to keep out frost. You have your plants too moist in proportion to the temperature and light: give less water and more air. See what Mr. Fish says to-day.

ASPARAGUS BEDS (*Cestrian*).—You have made these at the worst possible time; March or April, when the young plants begin to vegetate, is the proper time for planting them. You made the bed very well, but putting horse-dung *over* the plants is bad. The crowns of the plants should not be more than two inches below the surface; reduce your covering to this depth and then leave them alone. No frost, however severe, will hurt them. Supply them plentifully with liquid manure twice a-week *when they are growing* next summer.

SALINE REFUSE (*J. K.*).—This mixture is of 50 parts gypsum, 40 parts lime, and 10 parts sulphates, muriates, and silicates of soda and lime. It will be of advantage to pasture sown broadcast in March over the land, at the rate of ten bushels to the acre; if wet, it may be mixed with earth or ashes to enable it to be delivered by hand; we should thus apply it in preference to mixing it with animal manure. To a clayey kitchen-garden it would be of little use. A sprinkling, about one pound to a square yard, would be of service to asparagus and sea-kale when they are growing.

GOOSEBERRIES (*S. S.*).—At page 391 of last volume you will find a list fully directory.

VINE WITH RED LEAVES IN AUTUMN (*Ibid*).—We cannot tell certainly the name from this circumstance. The leaves of the *Black Muscadel* become bright scarlet in autumn; those of the *Claret Grape* then become of a blood colour, and those of the *Cambridge Botanic Garden Grape* change to bright crimson. Prune the side shoots of your *Raspberry canes* so as to leave only two or three eyes. We keep our *Chamontelle pears* in a dry temperate room, and take care to have them on table the very day they are ripe; they are improved by having them in a warm room, or before the fire, for a few hours before putting them on table. Other question next week.

CAMPANULA CARPATICA (*Veras*).—If the original species, with blue flowers, is sown very early in the spring in a gentle hotbed, and well attended, it will probably bloom in the autumn. Your other question next week.

FRESH GAS LIME (*Capt. J. F.*).—We have no hesitation in applying this to arable land as a manure; in fact, by keeping it loses the little ammonia it contains, and becomes a mixture of sulphate of lime and chalk. It would not do to apply it fresh as a top-dressing to growing plants, but if spread over vacant ground previously to digging or ploughing, and used in moderate quantities, it may be applied fresh.

TREE ONION.—Mr. N. S. Hodson, Bury St. Edmunds, obligingly writes as follows:—"Many of your readers having been supplied, and expressing a desire to know the mode of cultivation, I have only to observe, that the small bulbs sent will produce fine onions next year, and when taken up in the autumn, and planted again in the spring, will afford a good supply for the future, as it is only the larger ones that give a crop of bulbs on the top of the stem. It will be found requisite to support the plants during their growth."

HENS LAYING SHELL-LESS EGGS (*J. Neary*).—When they do this habitually, it becomes a disease, and is called the *lush* or *con*, arising usually from torpid digestion. Give each hen a small teaspoonful of gin, and feed them for a while on soft nourishing food, small quantities at a time.

STOVE FOR GREENHOUSE (*W. E.*).—You do not tell us what you require it for, whether for forcing the vine, or to keep frost from the plants.

MILDEWED CROCUS (*A Lover of Flowers from Childhood*).—The bulb you sent us was quite dead and dry. If they are all like that, nothing remains but to procure fresh bulbs.

HEATING PIT (*Speeds*).—We have no doubt that the plan given at page 56 of last volume will answer well for your pit to strike cuttings. Ask two or three whitesmiths in your neighbourhood, what they will construct it for. Do not apply *ammoniacal liquor* to your worn-out land until the time when you are about to give the last ploughing before sowing or planting. A gallon to every thirty square yards will not be too much. The price is merely nominal.

FERNS IN NORFOLK.—A correspondent, in every way trustworthy, writes to us as follows: "As one of your correspondents inquires in what parts of Norfolk the Adder's Tongue (*Ophioglossum vulgatum*) and the Moon Ferns (*Botrychium lunaria*) are to be found, I am glad that I am able to give him the information which he wishes for, at least with respect to the habitat of the former plant. It is not at all uncommon in some of the pastures in the neighbourhood of Watton: it grows abundantly in a meadow close to my house (Ovington Parsonage). *I am informed* that *Botrychium lunaria* grows at Shropham, six or seven miles south of Watton, but I believe sparingly, on a piece of ornamented land opposite the Hall, on the right hand of the road leading from Watton to the village of Shropham, and thence to Kenninghall."

COMEDIANS (*Dramaticus*).—We have read with great pleasure your able note in defence of your profession; and it shall be forwarded to the authoress of "My Flowers," who, be assured, would not willingly needlessly cause an annoyance to any one.

VINE-LEAVES BLOTCHED (*Tirydail*).—Ventilate more perfectly. We believe the blotches arise from the moisture loaded with ammonia arising from the manure of your cows in your vinery condensing during the night on the leaves. Can you not use means to get rid of the ammonia, by watering the stalls, &c., with chloride of lime daily? We look forward with pleasure to your promised communication.

NAMES OF PLANTS (*Boston*).—We think the sprig you sent is of *Acacia floribunda*. You say it came from Australia, and that you "have it growing against a wall with a western aspect." We shall be much obliged by your stating where you live, how many years you have grown it in the open air, and what protection you give it in winter. (*J. S.*).—Your plants are *Celestina agcratoides*, a greenhouse perennial, and one of our best bedding-out plants; and *Erica persoluta alba*. (*J. F. Armstrong*).—1. A species of *Jungermannia*. 2. *Asplenium adiantum nigrum*. 3. *Asplenium ruta-muraria*. Your grass-like fibres, we think, are those of the New Zealand flax, produced from a kind of lily, *Phormium tenax*. Your hothouse plant is *Justicia picta*. (*Devonshire*).—We cannot tell the name of your *fir* from so small a specimen. (*J. L., Epsom*).—Your plant is the *Eucomis punctata*, a greenhouse plant, readily increased by offsets; be sparing of the water-pot until the plant begins to start again next year; do not injure the present leaves of the plant, but let them die off naturally. A good rich sandy loam suits it well. Your specimen is well grown. We wish all of our correspondents would send such good specimens, we should then find but little difficulty in answering them.

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WEEKLY CALENDAR.

DECEMBER 12—18, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Black-throated Diver comes.	30.030—29.879	36—30	E.	0.02	59 a. 7	49 a. 3	morn.	9	6 4	346
Lucy. Red-throated Diver comes.	29.851—29.843	47—30	E.	—	VIII	49	0 41	10	5 26	347
Tufted Pocher comes.	29.865—29.806	55—48	S.	0.09	1	49	1 48	11	5 7	348
3 Sunday in Advent.	29.951—29.773	57—42	S.W.	0.09	2	49	2 57	12	4 38	349
Cambridge Term ends. O I Sap.	29.911—29.661	58—46	S.W.	—	3	49	4 10	13	4 9	350
Oxford Term ends.	29.859—29.525	53—40	W.	—	4	49	5 25	14	3 40	351
Ember Week.	29.766—29.426	52—42	S.W.	0.11	4	49	6 41	15	3 11	352

he churchyard of Chelsea stands a column bearing this inscription:

Philip Miller,
sometime Curator of the Botanic Garden,
Chelsea,
and author of The Gardener's Dictionary,
died December 18, 1771,
aged 80;
and was buried on the north side of this
Church-yard, in a spot now covered
by a stone inscribed with his name.

The Fellows of
The Linnæan and Horticultural Societies
of London,
in grateful recollection of the eminent
services rendered to the sciences of
Botany and Horticulture by his in-
dustry and writings,
have caused this monument
to be erected
to his Memory,
A.D. 1815.

rvices thus gratefully remembered were indeed eminent; and it is excess of praise to attribute to the publication of the seventh of his Dictionary, in 1759, the first and most powerful aid that en made for the improvement and elevation of gardening. Not as there gathered into its pages all the best horticulture of the day, it were adopted for the first time the Linnæan system of arrange- and the number of plants so classified doubled in amount those ed in the first edition. It gave a final blow to the opinion long lined, that gardening was scarcely more than a superior rustic : from being merely practised by servants, it aided in rendering it xtensively the study and the delight of many of the most scientific levated individuals of this country; Botany and Gardening were tely united; and the latter from being a mere empirical art was into a science. Circumstances enabled Miller to establish this nd beneficial change, nor does this detract from his merit; for one characteristics of a sound judgment is to watch for opportunities take advantage of them. The recent reform of Botanical classifi- ; his facilities for visiting Holland to learn new modes of culture; reasing love for plants and their cultivation; the existence of the listinguished gardeners hitherto known in England; the establish- of several public Botanical Gardens; and the ardour of research for ants in every district of the earth, all combined to furnish Miller with als which he did not fail to mould to his purpose. Previously to iod the number of exotic plants cultivated in this country probably t exceed 1000 species; and whilst he lived these were multiplied ld. When the first edition of his Dictionary appeared in 1724 but evergreens were there enumerated; the *Christmas Flower* and e were so rare that they could only be purchased at Mr. Fair- Hoxton Nursery; and only seven species of exotic *Geranium* nown. Contemporary with Miller, and to whom he acknowledges f a debtor for much knowledge, were such men as the following: ild, just mentioned, and institutor of the Fairchild Lecture; y, of whom we gave a sketch a few weeks since; Mortimer, of ghoe Hall, author of "The Whole Art of Husbandry;" the Rev. rence, author of so many works on Gardening; Switzer, the best er and writer of his day; Collins, Cook, and many others of equal s, of all whom we shall by degrees give biographies. Nor must we o enumerate the nurserymen who were Miller's contemporaries— hose descendants are now among us, and still known as those well sant with plants, "from the lofty cedars of Lebanon down to the e moss of the wall." Miller enumerates of them, as his friends, nas Fairchild at Hoxton, Robert Furber at Kensington, Robert at Vauxhall, Samuel Driver at Lambeth, Moses James at Stand- Obadiah Low at Battersea, Christopher Gray at Fulham, Benjamin rill at Hoxton, Francis Hunt at Putney, William Gray at Fulham, m Wood near Hyde-park-corner, John Thompson at Chelsea, e Singleton at the neat-houses, and Richard Cole at Battersea." s remember, also, that Forsyth and Aiton—men well known to e—were his pupils; and that he had been born early enough to een "the English Linnæus," John Ray. "Mr. Miller," says Dr. y, "was the only person I ever knew who remembered to have Ir. Ray; and I shall not easily forget the pleasure that enlightened untenance—it so strongly expressed the *Virgilium tantum vidi* ie have seen Virgil), when, in speaking of that revered man, he l to me that incident of his youth." Lastly, Mr. Miller had the age of the public gardens recently established, and was himself the r of those at Chelsea. These had been founded as early as 1763, ey were renovated and rendered permanent by Sir Hans Sloane in

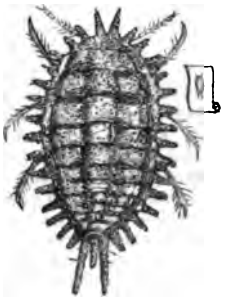
Having purchased the manor of Chelsea, he gave the site of the s, about four acres, to the Apothecaries' Company, and the Cura- of them was bestowed on Mr. Miller. He retained that honour- fice for forty-nine years; and when he desired to retire, though the ny accepted the octagenarian's resignation they continued to him ary.

other incidents of Mr. Miller's biography are few, but not the less ting because not marked "by marvellous events and near-death incidents." Such lives of turmoil and fearful struggles can occur to few, but the man of lowly birth winning his way by gentle means from poverty to eminence is an example worthy of all imitation, and by all capable of being imitated. There is evidence that he was born, in 1691, near Deptford or Greenwich, where his father was a market-gardener; and Miller himself eventually had a small florist's garden somewhere in Southwark, about the place where the King's Bench Prison now stands. Whilst there he attracted the notice of Sir Hans Sloane; and how worthy he was of that notice his subsequent career testified abundantly. His *Dictionary* is his enduring monument, and fully entitled him to the rank bestowed upon him by foreigners of "Chieftain of Gardeners" (*Princeps Hortulanorum*). In turning over the pages of the various editions of that Dictionary, we may learn from their pages many curious facts, of which we will note down but two more:—*Brocoli* was a stranger in England until 1719, and was then called "Sprout Colliflower or Italian Asparagus." *The Fig* was little attended to by English Gardeners; and Miller was the first to render it more popular by obtaining from Italy the best varieties. The high estimate formed of the work by our continental neighbours is evidenced by its being translated into the Dutch, German, and French languages. In the translation last named is "a fancy portrait of the author, in a bag wig and ruffles,—a costume, says Dr. Martyn, truly ludicrous to such as remember the plain old-fashioned English dress in which Mr. Miller always appeared." Besides the Dictionary, Mr. Miller published a *Gardener's Calendar*, a *Catalogue of the Chelsea Garden Plants*, besides several papers in the Philosophical Transactions. Among these is one on *flowering bulbs in water glasses*, a mode then lately discovered.

But little remains with which to conclude our brief memoir of this great gardener. He was elected a member of the Botanical Academy of Florence, and of the Royal Society of London, to whose Council he was occasionally elected. He was much consulted on the subject of laying out grounds, and other departments of gardening, by the Dukes of Bedford, Northumberland, and Richmond, and by many others of our nobility and gentry; but the time had now arrived when even "the weight of a grasshopper became a burthen;" and so resigning all public employments, he retired to a residence adjoining the churchyard which he desired should be his final place of rest. He had married the sister of Mr. Ehret, then celebrated as a painter of botanical subjects, and the offspring of that marriage were two sons, one of whom, Charles Miller, became the first Curator of the Cambridge Botanic Garden. "Mr. Miller," says Dr. Martyn, "accumulated no wealth—he was of a disposition too generous and careless of money to become rich; and in all his transactions showed more attention to integrity and honest fame than to any pecuniary advantage." Yet until within these few years no adequate memorial of him was raised. Even the genus of plants named after him is a libel, for the *Millerias* are "stove annuals, of little beauty, growing in any common soil;" whereas, if ever there was among gardeners a sterling English perennial, of high estimation, and rare occurrence—that individual was Philip Miller.

Meteorology of the Week.—At Chiswick, the observations during the last twenty-three years show that the average highest and lowest temperatures of these days are 46° and 35.1°, respectively. The greatest heat, 62°, occurred on the 13th in 1843; and the lowest cold, 11°, on the same date in 1846. During the time 89 days were fine, and on 72 rain fell.

Insects.—Of all the insects to which plants cultivated in an artificial climate are liable, none is so much to be dreaded by the gardener as the Mealy Bug (*Coccus adonidum*). If allowed to increase, the almost unsubduable consequences have been well described by Mr. Appleby at page 71 of our last volume. The gardener, however, has this comfort, and industry this stimulus—if the insect is attacked the moment the first is seen the pest may be usually avoided. Vines attacked by it should have every branch and stem brushed over sedulously with a hard brush, and then with a painter's brush as thoroughly painted over with this mixture:—Soft soap, 2 lbs.; flowers of sulphur, 2 lbs.; tobacco, 1 lb.; and a wine-glass of spirit of turpentine. Mix the sulphur, turpentine, and soap into a paste with warm water; boil the tobacco for an hour in a covered saucepan in some more water, strain it, mix it with the soapy mixture, and then add enough water to make five gallons. More tender plants can only have their stems and leaves sponged with water at a temperature of 115°, frequently, and so long as a single insect can be detected. The Mealy Bug on pine-apples may be destroyed by shutting these up in a frame over a bed of hot fermenting horse-dung. The Mealy Bug is a foreign insect introduced with exotic plants, but which breeds rapidly in our hothouses. Our drawing represents a female magnified, and of its natural size. It is somewhat like a woodlouse in form, but reddish, and covered with a white mealy powder. The male is slender, gnat-like, with two broad wings, and two brush-like filaments behind.



If we were desirous of impressing upon a stranger the extent and prevalence of the taste for gardening now existing in England, we could not effect our object better than by placing in his hands a small volume just issued from the press, entitled *The Beauties of Middlesex: being a Particular Description of the Principal Seats of the Nobility and Gentry.* Its author, Mr. W. Keane, endowed with a good taste for ornamental gardening, and a correct knowledge of horticulture generally, has visited those residences, and records their peculiarities in the pages before us. Now these residences amount in number to somewhat more than two hundred; and if we accept this as a fair average of the counties of England and Wales, then we shall have a total of more than ten thousand of these "stately homes of England" scattered over the face of the realm. This we think a fair calculation, for although Middlesex is the metropolitan county, yet, with the exception of two others (Rutlandshire and Anglesey), it is the smallest in all Britain. It is gratifying to know the evidence these ten thousand give of the love of home pleasures, now so characteristic, and yearly more and more characteristic, of our countrymen. But it is still more gratifying to know that each of those ten thousand are centres of improvement, tending to elevate the gardening and to increase the home attractions of even the poorest neighbouring cottages for miles round each. It soon becomes known when and how "the gardener up at the great house" puts in his kitchen-garden crops and prunes his trees; and "the gardener up at the great house" will give a cutting of a flower now and then to those who love to have them in their borders and sitting-room windows. An infusion of good knowledge and of good plants, which we can aver from experience, brushes up a neighbourhood.

At present we shall do no more than extract the following, not only as applicable to our memoir to-day of Philip Miller, but as a fair specimen of the amusing nature of the work; but we may return to the volume, for it contains much suggestive matter:—

"CHELSEA BOTANIC GARDEN

Is venerated for its antiquity, respected for its celebrated patrons and curators, and upheld for its utility.

"'Go with old Thames, view Chelsea's glorious pile,
And ask the shatter'd hero whence his smile.'—ROGERS.

"Whoever has passed up the river beyond that noble building must have observed the two old specimens of vegetable life, the cedars of Lebanon, which have weathered the storms since the year 1683; their ramifications are most distinct, and their umbrella-shaped heads are picturesquely developed. This garden contains between three and four acres, its origin is involved in obscurity. The first notice of it in the books of the Apothecary's Society is in 1664, when it was proposed to wall it round; and two years afterwards, the Company agreed to purchase the plants growing in Mrs. Gapes' garden at Westminster; which garden, it is thought, may have been the one mentioned in Evelyn's Diary for 1658, as 'the medical garden at Westminster, well stored with plants under Morgan, a skilful botanist.' Piggott is the name of the first curator noticed in 1676, to him succeeded Watts, and then Doody, who continued to superintend it till 1717, when Petever was appointed; the celebrated Miller was appointed in 1722, at the time Sir Hans Sloane, when applied to for a renewal of the lease of the garden, granted it to the Society in perpetuity at a rental of £5 per annum, and on condition that specimens of fifty new plants should annually be furnished to the Royal Society, till the number amounted to two thousand. Miller resigned his situation two years before his death in 1771, and was succeeded by Forsyth, who went to be royal gardener at Kensington in 1784, and was succeeded by Fairbairn, who died here in 1814. He was succeeded by William Anderson, who died in 1846. Robert Fortune was then appointed to the situation, which he held for a short time, and resigned for a more lucrative appointment in China. The situation is now filled by Mr. Thomas Moore, one of the editors of the Gardener's Magazine, who is contributing most materially to restore this fine old garden to its original high character for utility and good keeping. The following horticultural buildings are disposed in different parts of the garden:—The span-roofed hothouse is 60 feet long by 20 wide; a fern-house 30 feet by 12; a greenhouse 30 feet long, and a house for succulent plants 30 feet long by 12 wide. The span-roofed greenhouse is 40 feet long by 20 wide. On the north side of the garden is a spacious brick building 120 feet long and two stories in height, erected in 1732. On the ground floor is the lecture-room, with suits of apartments overhead. Attached to it on one side is a greenhouse, and on the other side a stove to correspond, each 50 feet long. The following plants were noticed either for their size, rarity, age, high state of cultivation, or for their useful medicinal properties:—

Antiaris toxicaria (the Upas-tree)
Gesnera mollis
——— oblongata
Indigofera tinctoria (East Indian Dyer's Indigo)
The Chusan Daisy
Naphæa rubida
Phytolacca icosandra
Allosorus sagitatus
Gasteria nigricans
Adianthum curvatum
——— trapeziforme
——— setulosum
Littœa geminiflora
Aloe purpurascens
Echeveria, of sorts
Haworthia translucens
——— retusa and other very pretty spotted varieties
Thuja pendula, six feet in height
Araucaria excelsa
Aloe Mexicana
Zamia elegans, three feet in circumference
——— furfuracea (yields the best sort of Arrowroot)
Diospyrus Lotus
Planera Richardi
Ostrya vulgaris
Pandanus odoratissimus
Cycas revoluta
Asclepias curassavica
Ficus nymphæifolia
Euphorbia canariensis (the drug Euphorbia)
Styrax officinale
Fraxinus heterophylla
Kolreuteria paniculata

"In the extreme eastern corner stands one of the straightest, and one of the most beautiful Oriental plane-trees that can be seen in England; it is 17 feet in girth 2 feet from the ground, with a bole 30 feet high. There are also beautiful specimens of the cork-tree, a large evergreen oak, and an unusually fine Celtis occidentalis (the nettle-tree). There are many other exotic trees flourishing here in the open air: the Salisburia adiantifolia is as high and as large as a swan's-egg pear-tree, which it resembles; an old Pomegranate, Magnolia, and the Styrax officinale, and above all, a noble Pistacia terebinthus (the turpentine-tree and oak-tree of Scripture).

"Lysons says, that 'Sir Joseph Banks made an accurate admeasurement of the two cedars of Lebanon in the month of August 1793, and found the girth of the larger to be 12 feet 11½ inches, that of the smaller 12 feet and half an inch.' Upon being measured again in the month of May 1809, it was found that they had increased 12 inches in girth since the mouth of August 1793. The larger one now (1850) measures 15 feet 9 inches, and the smaller one 13 feet 4 inches, 2 feet from the ground. In Evelyn's Memoirs, vol. i., page 606, we find the following notice of this garden:—'August 7, 1685, I went to see Mr. Watts, keeper of the Apothecaries' Garden of Simples, at Chelsea, where there is a collection of innumerable rarities of that sort particularly, besides many rare annuals, the true bearing Jesuit's bark, which has done such wonders in quartan agues. What was very ingenious was the subterranean heat conveyed by a stove under the conservatory, all vaulted with bricks, so as he has the doors and windows open in the hardest frosts, secluding all the snow.'

"It is rather a singular coincidence, that after the lapse of more than 160 years, a system should have been introduced to the same place under the name of Polmaise, 'which was to heat a hothouse on a simple principle, without flues or hot water pipes, or anything else in the way of pipes, but merely by a circulation of hot air abundantly supplied, and heated to any temperature by means of a stove.' Although the system was introduced with a flourish of trumpets, and

ıe management of Mr. Fortune, it is humiliating to ɜting pride of the improvements of the 19th century that the discovery, a mare's nest, was very much to Watts' stove of the 17th century, and was soon ıed as impracticable.

he centre of the garden is a marble statue erected to nory of Sir Hans Sloane, by the eminent Rysbrack. ckwork around the aquarium, near the statue, is of particular notice for its historical recollections. mposed of the tuffa, corals, and madrepores brought taheite by Captain Cook. The ideas which these immediately suggest, expand to circumstances con- with far distant lands, from which they are recalled beauty and seclusion of the home grounds,

"'Where in the grass sweet voices talk,
And strains of tiny music swell,
From every moss-cup of the rock,
From every nameful blossom's bell.'"

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

INGRAM'S BEGONIA (*Begonia Ingramii*). — *Gar- Magazine of Botany*, vol. ii., p. 153.—The genus a was instituted by Linnæus to commemorate ne of Michael Begon, a French patron of botany. ıole order numbers about 150 species, which are of considerable interest with our gardeners, and of contention with the cultivators of botanical —no two of them agreeing as to the place it should in the natural classification of genera. Like the ber and the filbert, the Begoniads have the male nale organs in different flowers on the same plant, e, therefore, referable to the 21st class of the Lin- ystem. It has been long a matter of opinion, and f fact, that points of difference which separate nus, or one species of plant, from another, are to ended on in proportion to the nearest approach ake to the seat of reproduction, or that of the seed. a difference in the envelope of the flower, the is less to be depended on as a specific or generic tion than that in the floral leaves or petals; and, r turn, petals when they differ in two plants are ıstworthy marks than such as occur among the ıs; and so on to the seed cord and the body of the seed itself. Relying on this minute kind of investigation, Begoniads are now found close by the side of the *cucumber*. But this research is pushed to the negative pole; for we find young and old splitting these Begoniads into fanciful genera in the absence of more novelties on which to exercise botanical acuteness. A solid or a two-lobed seed cord—not a double cord, as is asserted—being the point of separation. We, too, have been eyeing the cord of Begonias, but our glass is somewhat worn with close inspections, and will not reveal to us a separation of this same cord; we can make out the two lobes representing the folded leaf in embryo, but still the folds join what should be the midrib; and in our school-boy days, when our blankets were put over us doubled, the nurse never said they were double blankets! Be that as it may, Mr. Ingram has here doubled our gratitude to himself in having united two of the best Begoniads and produced a third, which will some day strengthen the most cherished cord which binds the cottager to his flower-pots. And we do hope those Begoniads, which Hartweg discovered climbing up trees like cords of cucumbers "to the height of 25 feet," will soon be coiled round all discordant botanists, and thus enable them to harmonise their disagreement about Begoniads.

Mr. Ingram's Begonia was raised in the Frogmore Gardens by Mr. T. Ingram, jun., by crossing *B. fuchsioides* with *B. nitida*. Seed sown at the end of 1849 produced seedlings which bloomed last August, and this is one of them. *Stem* erect, warted; *leaves* four inches long, unequal-sided heart-shape; dark glossy green above, pale glossy green beneath, with ribs reddish, and edges waved and round-toothed; *flowers* in drooping two-ranked bunches; the male and female flowers are alternate in separate bunches. *Male flowers*, calyx, or outer flower cup, pale pink; the outer pair of its sepals, or sections, roundish, egg-shaped, and fleshy; and the inner pair narrower, boat-shaped, and paler; stamens united into a column, and crowned with yellow oblong anthers. *Female flowers*, sepals five, oblong, and pale pink; styles divided into two spiral, downy, pimpled, yellow stigmas; ovary three-celled, longish egg-form, three-sided.

THE KAMTCHATKA RHODOTHAM (*Rhodothamnus Kamt-*

chaticus).—*Paxton's Flower Garden*, p. 113.—Pallas, the discoverer of this plant, named it *Rhododendron Kamtchaticum*, and we wish that what that excellent authority had fixed had not been disturbed. We so wish, because unless a genus is already overloaded with species, we admit of no right to disturb a species included in it, except upon much more essential points of difference than those on which this is raised to a genus. It is said to have a large calyx, but so has *Rhododendron barbatum* and others; it is said to have a corolla deeply divided, but so has *Rhododendron Caucasicum;* surely the mere mode of the stamens spreading is no ground of generic difference; for, if we remember right, *Rhododendron chrysanthum* is not very different in this respect; and as to the gland at the terminal point of the leaf, why it is one of the peculiarities of the Rhododendron, according to some writers, to have its leaves with a withered point or yellow gland. Moreover, if the Ground-Cistus Rhododendron (*R. chamæcistus*) is to be retained in that genus, we, with diffidence, submit that this genus of *Rhodothamnus* can have no good grounds for being created. We do this with less reluctance, because the great object of every science is to bring its subjects into the smallest possible number of sections, so that the mind may not be needlessly burthened.

M. Pallas found this beautiful and quite hardy shrub in muddy places on the mountains of Kamtschatka and the Aleutian Islands, situated between the extreme northern points of Asia and America. It will not bear exposure to our summer heats and dry air, except in a damp situation beneath a north wall. It has a creeping *root*, and prostrate leafy *stems; leaves* close together, alternate, stalkless, egg-shaped, with a point tipped with a conspicuous gland, edges of the leaves hair-fringed; *flowers*, with corolla, or inner flower cup, flat, like that of the primrose, but purple; and leafy calyx, or outer flower cup; stamens ten, unequal in length, and having anthers purple, double, and egg-shaped. It was cultivated as long ago as 1802, but Messrs. Loddiges, who raised it from seed twenty years since, have it now only as a bush about ten inches high. "It is admirably adapted for rock-work in a shady situation."

Rhodothamnus is derived from *rhodon*, a rose, and *thamnos*, a shrub. It belongs to the Natural Order of *Heathworts* (Ericaceæ); 10-*Decandria* 1-*Monogynia* of Linnæus.

SWEET TRICHOPILIA (*Trichopilia suavis*).—*Paxton's Flower Garden*, t. 11. Natural Order, *Orchids* (Orchidaceæ).—This stove orchid is a native of Central America; flowers creamy white, spotted with red and pink; about six inches high. Flowers in summer, and perfumed like the hawthorn. Introduced in 1848. Its name is derived from *thrix*, hair, and *pilion*, a cap, referring to the cap of the anthers.

VARIOUS-LEAVED PARSONIA (*Parsonia heterophylla*).—*Journal of Hort. Soc.*, v. 194.—This genus was named in honour of Dr. James Parsons, a Scotch botanist. It belongs to the Natural Order of *Dogbanes* (Apocynaceæ), and to 5-*Pentandria* 1-*Monogynia* of Linnæus. The genus was made up of some species previously included in *Echites*. The species now before us was raised in 1847, in the garden of the Horticultural Society, from New Zealand seed. It is a greenhouse evergreen twiner. *Stem* round, clothed with yellow down; *leaves* very varying in form, but chiefly like those of the willow, leathery and dull green; *flowers* cream colour, in one-sided bunches, rather fragrant; calyx very short; corolla pitcher-shaped, with edge five cleft and rolled back; anthers tailless, and arrow-shaped. It is a native of northern parts of New Zealand. Another species, characterised by the same changeableness of leaf-form, was introduced from the same island in 1847, and similarly raised. It is named Variable Parsonia (*P. variabilis*), and is only distinguishable from the preceding species by its shining leaves, which are even more various shaped, by the flowers being smaller and bell-shaped, less hairy, less numerous, but sweeter. It has little beauty. B. J.

THE FRUIT-GARDEN.

STRAWBERRY FORCING.—We are reminded, by an inquiry or two, that many difficulties still beset this practice, whether in the hands of practical gardeners or of the amateur. And it is by no means a task of easy and certain accomplishment to produce good crops of well-flavoured strawberries in the beginning of February, even by those who have every needful appliance. Still, as it is not only possible, but has frequently been accomplished, there are those who will still fearlessly attempt; more especially as the fruition of their wishes in this respect will constitute a horticultural triumph of no inconsiderable character.

It will not perhaps be amiss at this time to offer a few remarks, tending to attract attention to the *main* features of their culture; for it is generally by a close attention to one or two *great facts* that success is attained; and young beginners, in the true spirit of quackery, are but too apt to place a reliance on a host of small secrets which they have somehow picked up in their travels. Such should remember the old fable of "the cat and the fox"—the "single shift" of getting up a tree saved poor Pussy, whilst Foxey with his many devices perished.

Amongst such *small secrets* may be named the following:—The application of liquid-manure, frequent syringings, top dressings, steamings, &c. All these are good in their way and as assistants, but the prime secret of successful strawberry forcing does not lie here. We have before urged, that good plants *alone* form the very foundation of all success. Who can hope to obtain a good crop, even in the open ground, from ill-used and late-obtained runners? And yet here the chances, with regard to setting, &c., are as ten to one in their favour. Depend upon it, all appliances are vain, unless the forcer has a thoroughly organised and matured bud to commence with. Without this, anomalous appearances will present themselves in every stage: the leaves will rise and elongate considerably without the flower truss (which in the open ground in May is almost equal in its advancement); the flower truss will begin to expand with every symptom of malformation before the bloom stalk is of a proper length; and, finally, those berries which perchance "set," will be little more than pigmy abortions—one-sided, ill-swelled, and ripening prematurely. To such anomalies the gardeners of the olden time were wont to give a set of technical appellations, which, like the old term "blight," seemed to bid defiance to investigation; and belonged rather to that nondescript catalogue of mysteries which have always

themselves to every art, in proportion to its
a sound and scientific basis. Thus far then as
or plants, we will now say a few words about
nts, and how to proceed in their first stages.
say, put them in a cool vinery; some in the
ise; some in the peach house; and others in a
pit. Now, this mode of teaching young begin-
ot good. What boots it as to what structure
r be in, provided the main conditions as regards
nospheric moisture, air, and heat, in a due rela-
ach other, be secured? Young beginners will
rn principles by these means. It is a matter
t indifference to the strawberry, or indeed to
r fruit or plant, what the structure is, if it is
to subserve those great principles. Let, there-
inexperienced at once learn not only the in-
importance of any of these principles abstract-
of the whole conjunctively.
me now to a most important consideration, as
on strawberry forcing, viz., whether it is more
ning *light*, or the *warmth*, of spring that first in-
evelopment of the parts. To say that it is both,
o a sort of truism of almost universal application
getable world; nevertheless, it may not be the
, that the one agent exercises greater influence
other. Be this as it may, there is one fact
d with mere temperature which deserves atten-
sideration: viz., the relation *the ground heat*
that of the atmosphere. There can be little
at from the end of November until the end of
the soil at a foot deep out of doors is on the
ome eight or ten degrees in advance of the atmo-
Now, if this be true, we may ask, what is the con-
of such a discrepancy? and whether such is
on the shelves of any of the houses before-
As to the first, we will attempt a solution;
cond, we boldly answer—*No!*
sidering this affair let us, in the first place, con-
strawberry as an herbaceous evergreen, and
e in a great degree to the same influence through
temperature, &c., as other hardy evergreens.
oreover, natives for the most part of temperate
hey *must* be liable in their native habitats to the
discrepancy in temperature before alluded to;
becomes almost a necessary condition of their
g.
we do know that almost all hardy evergreens in
ate continue to increase in the volume of the
the winter, if not an *entire renewal* of some
. Such admitted, and no corresponding increase
oliage, what becomes of the ascending juices,
d we presume they *must?*
rs differ—so do gardeners; but our version of the
tands thus: from or about the period at which
vberry ceases to grow, or rather to elongate in
(which will be about the time, in general, that
to produce runners), the whole system of the
comes almost entirely elaborative—that is to
natural enlargement of all the parts being com-
nature directs all the energies of the plant
digesting and storing up its materials for the
perfecting of its parts, and for future growth,
fruit in its day has the power of appropriating
necessary. During these continuous processes,
nvolve, of course, a considerable amount of
tion, much of the watery fluid by which the
came charged during the period of active vege-
asses off, and leaves the tissues of the plants
tively empty. Thus it is with most of our
tribes; and, under such circumstances, it would
be necessary that many weeks of root action,
any excitement in the leaf or bud, becomes
y, in order to create the first genuine impulse to
kening bud.

If this be anything like sound doctrine, does it not point to a discrepancy in temperature in the earlier stages of strawberry forcing as a necessary procedure? Does it not throw light on the idea that has of late been a favourite one with most of our best gardeners—viz., that in most forcing cases the root should be in advance of the top? Assuredly it will be found good practice with the strawberry; and we, therefore, strenuously advise that the early strawberries, at least, pass the first month of their forcing (if such it may be termed) in some structure where they may be plunged in a steady temperature of 60° as to ground heat, whilst the crown of the plant is in an atmosphere fluctuating between 40° and 45°.

Sixty degrees will, perhaps, appear as an almost immaterial amount to some persons, but it is not so to plants which have for weeks been subjected to a temperature of 45° to 50°. Moreover, it is not far wide of the ground heat the strawberry receives during the latter part of April—the very period at which the first spring developments are taking place, and which of course corresponds with the period we are now prescribing for. This practice is, we know, backed by most good cultivators of the present day, in principle at least; in this, however, as in many other things, mere expediency—that offspring of moral cowardice—or an undue pressure of collateral affairs, too often dictates the course to be pursued.

Now, assuming those doctrines to be correct, for the sake of carrying out the argument, it follows that the earliest stage of forcing would be as well carried on out-doors as in, and then all the fuss about their situation in the houses set aside. And here we meet again the practice of our best cultivators, who say there is nothing like cold frames or pits, *if you can spare them*, for wintering in.

Our advice, then, is, to those who would force *very early* strawberries, to sink a brick pit, or pits, below the ground level—say two feet. Let it be made half a yard wider all round than the frame intended to be set upon it. Introduce fermenting material in the middle of October, finishing with a coating of old tan. In this instantly plunge the pots to their rims; and take care, by free ventilation, to keep the surface temperature down—say ranging from 40° to 45°. The frame being half a yard narrower than the pit, linings may be applied subsequently, so as to excite the bottom-heat, if necessary. Of course, if the bottom-heat became too strong, a little cold water introduced, by lifting out a pot here and there, would set all right. Let it be understood, however, that the pit wall terminates even with the ground, and that the frame is not put over the plunged pots until frost arrives. Those who can imitate the principles here laid down, by a bottom-heat of piping in a chamber, would do well; and were we gardener to some go-ahead *millionaire*, we would instantly establish some such a thing, never fearing the result. Indeed, this plan of exciting autumn or early winter things, by means of an out-door bottom-heat (if I may so term it), is a new idea of some import, in our opinion; or if not new, folks have hitherto been very shy in enunciating its principle.

There can be little doubt but that most of our early winter flower-forcing should rest on this basis; for why introduce things to heat of a sudden, and at a given date, as though every gardening process had to be guided by an act of Parliament? The doctrine of the necessity of a periodical rest—a wholesome doctrine in itself—has been too severely strained in many such cases; and it does appear to us that many things destined for mid-winter or late autumn work should never be allowed to sink into absolute repose through low temperature—the partial repose, or rather concentration of energies, induced by well-matured elaborations, being, in all probability, all that is required. R. ERRINGTON.

THE FLOWER-GARDEN.

TREES AND SHRUBS.—After the Thorns come a host of nice low trees and large shrubs—such as *Cotoneasters*, *Pavias*, *Amelanchiers*, *Ceanothuses*, *Prunus*, *Pyrus*, *Negundo*, and such like—one or two of which are well suited to represent the best of the older flower-garden and lawn trees.

Perhaps the very best out of the lot is the *Scarlet Horse-chestnut*, or *Scarlet Pavia*, as it is now called. The Pavias are quite low things when compared with the nobility of our fine Horse-chestnuts. If one had no more room than would take three ornamental trees, the Scarlet Horse-chestnut should be one of them. There are two or three kinds of it varying in the shade of the flowers; one of which is a deep scarlet, one a pinkish sort, and one a yellowish pink—the first is the best.

I believe it is now settled in the minds of the learned that either plants, or animals, belonging to two different families, or genera, cannot be crossed with one another, or, if they do cross, that they are of one genus nothwithstanding dissimilarity of aspect. The name *Pavia* to the dwarf Chestnuts, therefore, has been a great mistake, for they will cross and recross, like calceolarias, among each other, and with the Horse-chestnut—so that very often one does not know which is which, except by guessing from the appearance of the leaves. At any rate, for the purposes of THE COTTAGE GARDENER, dwarf Chestnuts is a much better name and easier to mind than Pavia. The Scarlet Horse-chestnut will not come true from seeds, but I would have plenty of them sown whenever they are found; and, after three years, destroy all the strongest ones, keeping only those seedlings that appeared to be of a weak constitution—just the sort of plants that many would not think worth their while to keep at all. But, as the dwarf Chestnuts do not all seed, and do not come true in most instances from seeds when they have them, they are grafted on the common Horse-chestnut in the nurseries, to increase the stock of them and to keep them all true to the sorts, as apples and pears are managed. Now, for small gardens, and, indeed, for any gardens, weak seedlings from the Scarlet Horse-chestnut are far preferable to graft the different sorts on than the Horse-chestnut; because the Horse-chestnut grows too fast for the Pavias, or dwarf Chestnuts, and, in time, either gets weakly itself or half strangles the weaker sorts; so that, except in nurseries and some good gardens where trees are very well managed, one seldom meets with dwarf Chestnuts, except, perhaps, here and there a scarlet one. One of the Scarlet Chestnuts here (Shrubland Park) had the roots cut all round at four feet from the stem the spring before last. It was becoming so large that it threatened to damage a fine *Ilex*, or evergreen oak; and as that kind of oak is ticklish about being removed, we prepared for transplanting the Chestnut away from it instead; and last May, what with the check from cutting the roots and from the good light compost put in the trench for the young roots to work in, it certainly was the finest tree I ever saw in bloom. Every single shoot, or side spray, all over a large round head produced a long spike of splendid coloured flowers; and some knowing ones who saw it then thought it was an improved sort from the old one; and if I had not been acquainted with the tree for years, I would side with them. But afterwards I found the reason to be that the flower-spikes being so numerous, the one reflected its colour on the next to it, and so on all over them; and when a flower-spike was cut off and shown at a distance from the rest, the colour was not so rich. Now this is just the way the best of us are often deceived about plants and fruits—something or another causes a temporary departure from the usual state of the flowers or fruit, and some great man says at once they are different from any of that kind he had ever seen or tasted before. The thing takes, and we all of us know the rest; and we seldom pass two years in succession without being actually gulled by our own best friends in this way, and no design either of deceiving any one. The mischief is, that we allow ourselves to fall into conclusions without troubling ourselves to think or find out causes; and if I were to say that all Europe would thus be visited before THE COTTAGE GARDENER is many years older, from irons already in the fire, everybody would call me a croaker.

The next dwarf Chestnut, or Pavia, that I would grow is one that is very little known among country people, indeed, little known out of the nursery and botanic collection. It is a native of South Carolina, where the fruit ripens so well that it is accounted really a fruit-tree, as nuts, filberts, or almonds, are with us; but having an easy, slovenly way of increasing itself from ground-suckers, people are content with that, instead of breaking off the bad habit of suckering. Let our friend, Mr. Errington, take it in hand, however, and make a "dwarf" of it, but not on the "dwarfing principle," but just on a contrary plan, and then send it over to Mr. Barnes, in Devonshire, and let it be planted in deep, rich, moist ground—as almost all plants from the low grounds in both the Carolinas and in Georgia prefer a moist subsoil,—and if it does not produce a late dish of excellent nuts for the desert, it will do what will be ten times more acceptable, flower in abundance, and in a very singular manner, for two or three months when no other hardy tree in England is in bloom; and if that is not a recommendation to it, what more can I say—only that nobody in the country knows it; because it is not a verbena to bloom on the ground in July, August, and beginning of September, instead of blooming a little above the eye at the same time. Now, I have said almost all that can be said about this kind of dwarf Chestnut, without absolutely giving the name of it; and yet I am free to set my "head on the block," if there is one gardener out of ten between here and Inverness—my Highland home—who could, on the spur of the moment, tell what species I meant; because the plant, as far as I know, has never yet been done justice to in private gardens, either as to name or culture. As to the name, like most trees and shrubs, it has been variously called, but the true one means large, or long spiked, *Macrostachya*, and refers to the long spikes of white flowers with which every shoot ends. It is not the length of the spike, or the colour of the flowers, however, which give its peculiar charm, but the fringe-like disposition of the stamens which advance much beyond the opening of the flowers, each flower having seven stamens; and when we know that these flowers are set closely on a spike of from ten to fifteen inches long, and each of them having so many stamens which spread out after getting free of the flower, we can easily conceive what a pyramid of fringes each spike will produce; and when a little standard tree, not much bigger than a standard rose, and from a score to a hundred of these fringed pyramids all glistening with the morning's dew, I know not a prettier plant for a quiet corner of the lawn, unless it be the Venetian Sumach, *Rhus cotinus*, under similar circumstances. But we shall never see it under such favourable circumstances by the way we generally manage the plant, and rear it from suckers and layers, because it shows a strong natural disposition to that way of increasing. The true way to manage it is to graft it on weak seedlings from the above Scarlet Horse-chestnut, on which it would grow soon to the nicest form possible for a small garden, and on which it would thrive for many years on good rich land with a moist bottom; because the stock and itself would go on all the while at about the same ratio of growth. Thus a Horse-chestnut in miniature, with an improved style of flowering, might be had for little or no trouble.

Besides the Scarlet Horse-chestnut, there is another dwarf chestnut called the Red-flowering Pavia, *P. rubicunda*, which is, perhaps, the next best of these dwarf sorts, but the flowers are not nearly so showy as those of the above two. The stamens of *rubicunda* do not project beyond the blossom, and the colour is rather dingy, but still it is a very nice little tree for a select collection, and there are three or more slight varieties of it, all very pretty, having glossy leaves growing in fives from one footstalk, like the five fingers of the hand from one wrist; and this style of growth they call *palmate*—another way of expressing the palm of the hand, although the botanical hand or palm is not confined to five fingers or leaves; the common Horse-chestnut having seven, and the middle one the biggest—as with the fingers.

Except it were for variety's sake, I would be content with these, but there are several others of them distinguished by their heights, leaves, and flowers; of the latter they cannot boast much, only milk-and-water or wine-and-water-looking things, unless there are newer ones which I do not know. As they are not bad things to graft or bud, one might try half a dozen sorts on one tree, and the scarlet would be the best to graft them on. Keeping them up near the top that they might have the advantage of sun and air, the Horse-chestnut itself would make the next best tree to work on. All kinds of chestnuts require the same way of pruning, as they flower the same way on the top of the shoots made the year before, or, as we gardeners say, "on last year's wood." This is the way the peach-trees flower, therefore one might reasonably suppose the same way of pruning would answer for the two sorts of trees, but that is far from being the case; two very different ways of pruning are necessary; but I am not aware of a single author or book in the English language which explains the pruning of chestnuts, except for timber trees. I have had so many questions about how such and such things ought to be pruned, that I am sure people do not understand our gardening terms or rules on pruning, unless they are explained in the simplest language one can use. To say briefly that such a tree or bush ought to be cut in this or that fashion, without giving the reason for the process, is almost as bad as advising one to cut his neighbour's ears in a particular way, without giving any reason for the attack.

This tribe of Chestnuts and Pavias, to distinguish them from the Spanish Chestnuts, the *Fagus* of Virgil, bear their flowers on spikes at the end of the branches, as we have just seen; and we are supposed to be pruning them to increase the number of their flowers only, without reference to the fruit. Every spike of flowers which will open next May, is now to be seen in the shape of "a fruit bud," as the fruiterer says—as if fruit sprang from buds instead of from flower-buds; and if you cut an inch this winter, or any winter, from a chestnut shoot that is to flower next year, you shall have no flowers from that shoot to send to the exhibition of 1851, because with the top inch of the shoot you carry off the flower-bud. Now, here is a ticklish question, for from this simple rule of not cutting off just one inch we are prohibited from cutting at all, or else forego for one year the pleasure of seeing our plant in bloom; so that if we are to prune one of these dwarf chestnuts and still expect a complement of flowers, we ought to have two plants of a sort, or else fall on a scheme by which to secure the requisite pruning, and still have as many spikes of flowers as the tree can bear to carry. There is not another fruit-tree or bush in the garden but you may prune from September to February, except the dwarf chestnuts. The proper time to prune it yearly, is just when the flowers begin to fade, and then the strongest branches all over the head ought to be pruned back to two or three joints, and if you cut to the last joint of the young wood of the previous season, you will have two shoots instead of one, as the buds are in opposite pairs in this family. There are not many flower-garden trees or shrubs which come in under this rule of pruning, yet it is a distinct rule, founded on a natural law, and, therefore, can not be violated with impunity. The other rule I gave for cutting thorns, so as to keep them free from too many shoots, is, like this one, hardly ever mentioned in books, and that is one reason why I began these papers with two families requiring rules not regularly applied in practice, if even well understood amongst ourselves. My next class will exhibit a third rule, a natural one, that is seldom seen in books, though practised every year by most gardeners.

There is one plant, or rather a small genus of plants, which, more than any other, shows the necessity of this third style of peculiar pruning, and that plant is *Deutzia;* and when managed properly is a very desirable plant, with immense quantities of white flowers in May, and is one of the easiest to force into early bloom. It belongs to a very small Natural order called *Syringas* (Philadelphiaceæ). It flowers on long slender shoots made last year, not at the very end of the shoot as with the chesnuts, but all the way up from near the bottom of each shoot. The *Spiræas* are the next nearest in their way of flowering. The *Syringas* should be pruned in summer only, and just as they are going out of bloom; and all of them, that I know, flower early in summer, except *Philadelphus Gordonianus*, which blooms in July. But first of all let us refer to *Deutzia scabra*, a Japan shrub now common in most gardens. The young shoots of this plant never flower well after the first crop, but throw up a fresh lot of young shoots from the bottom of the flowering ones to bloom the following season; therefore, it stands to reason, that leaving the shoots after they once flower can do no good to the plant, but may do harm by crowding the others, and thus depriving them from more sun and air. Prune them back, then, to the nearest young shoot which is now—say the end of May—coming up strong from below the flowering part, and this must throw more strength into the young ones, besides giving them more room; and so manage all the *Syringas*, and so also with *Philadelphus Gordonianus*, even in July. Do not wait till next winter, but relieve the plant of its then-going-out-of-flower shoots. *Scabra* is the only *Deutsia* that I can recommend for a select collection, and of the *Philadelphuds*, *coronarius*, or the old *Syringa*, or Mock Orange, and *Gordonianus* are the best two, and should be in every collection. *verrucosa*, or warted, and *latifolius*, or broad-leaved, are the next best couple; but all of them are sadly mismanaged by leaving them unpruned till winter in most gardens. The bushes get so crowded with little twiggy shoots, smothering each other so, that one out of ten of them are never seen to flower half so fine as they are capable of doing if pruned and kept thin of sprawling shoots in summer. There is another section of *Philadelphus* with quite a small style of growth, and with flowers sparingly produced in proportion. One from Mexico, called *Mexicanus*, gives a good example of this section; and here there is one reared from seeds sent to Sir W. Middleton by Viscount Hardinge from the north of India, which has not flowered yet, but looks much like the Mexican plant. The largest flowering of this small growing section is a North American one called *hirsutus*, or hairy,—the leaves being clothed with small hairs. This flowers about the same time as *P. Gordonianus;* and if the two were crossed carefully, they would probably furnish an improved race that would bloom in July, after all the others were over. *Mexicanus* and our old *Syringa* would also furnish a most useful cross, which would come in famously for forcing, and be fair rivals to *Deutzia* in that respect. Indeed, if all had been as it should have been, this cross might

now be in the nurseries. I took some pains in obtaining it as soon as the Mexican plant first flowered with me, and succeeded so far, that I made sure the cross was a true one; but soon after that "nobody" killed the plants, and yet, somehow or other, they were killed, and I was so disheartened, that I refrained from a second disappointment with them to this day; but I would strongly advise others to attempt to mix those four species, and also to try and effect a cross by either of them with *Deutzia scabra*, for I have very little faith on the botanical distinctions which raise it to the standard of a natural genus. *Philadelphus* having three or four times the number of stamens that *Deutzia* can boast of, *may* be owing more to the distance between Europe or central America and Japan than to anything else which, in the eyes of a gardener, can furnish marks of distinction sufficient to separate plants having so much of a family likeness. Besides that *Deutzia* also has a section of dwarf puny bushes like *Philadelphus* itself. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

THE ORANGE TRIBE.—If we chose to moralise upon the fickleness of taste, the history of the estimation in which at different times these plants have been held would furnish an appropriate subject. Once they were next to idolized. Considering the beauty of their foliage, the perfume of their flowers, and the rich flavour and varied usefulness of their fruit, we cannot but admire the desire that was manifested for their possession some two hundred years ago. Towards the close of the eighteenth and the beginning of the nineteenth centuries, the introduction of novelties threw the once coveted orange-trees into the shade. In the tastes for plants, as well as in the affairs of man, there is an ebbing and flowing tide, and oranges, for some time drifting backwards, are now feeling the ripple of the returning wave of public approbation. Well worthy are they of restoration to favour; fitted, as they are, to flourish against garden walls in the climate of London, and southwards, especially if hollow, heated, and protected with glass in winter; and even without these advantages, if secured from frost by wooden shutters or straw frames, suited to give an air of eastern luxury to our flower-gardens and lawns in summer; though the manner in which we employ them too often, in sticking them up in great gawky tubs and boxes, is anything but complimentary to a refined taste; capable of ornamenting at all times greenhouses and conservatories, clothing their back walls, as well as those of forcing-houses, with their foliage, fruit, and flowers, where the shade would prevent many other things from growing; and when the smaller kinds are used, or if somewhat larger are propagated by cuttings, then yielding nice little blooming plants for the window or sheltered balcony.

The Citrus tribe was originally introduced from India and China, but has long been naturalized, and its varieties increased in the warmer countries of Europe. It has been cultivated in Britain, with various degrees of success, between two and three centuries. Many distinct species, or what are termed such, are now in cultivation; and the varieties of these are very numerous. Without considering these, I shall allude in a few words before proceeding farther, to what may be termed the *popular* distinctions of the family.

First. There is the well-known *Orange* group *(Citrus aurantia)*. The leaves of this, as well as of the Shaddock, are oblong, entire; the foot-stalks winged with stipules; the flowers are generally white; fruit nearly round, and of a golden orange colour, used for dessert and many other purposes. There are a great many varieties. The small-leaved kinds are more curious than interesting. With their exception, *any* may be chosen, when *ornament* is the main object. When *fruit* is the object, the common blood-fruited Maltese, Sweet China, Seville, Mandarin, and St. Michaels, are the best—the two last especially so. The Seville is the best for marmalade; and as it is hardy, has large white flowers, and produces them plentifully, it is the best where *bloom* is the object. Its seeds sown are also good for stocks for grafting tenderer kinds. The Otaheite is a sweet little thing, almost always in bloom, well fitted for windows, but its bloom though sweet are small, and purple on the outside.

Secondly. The Citron *(Citrus medica)*: leaves not winged at the foot-stalk, toothed at the edges; flowers purplish on the outside; fruit large, yellow, warted and furrowed; used for preserves, lemonade, &c. The Madras Citron is the largest and best; seeds sown produce plants good stocks for other kinds.

Thirdly. The Lemon *(Citrus limonum)*: leaves generally similar to the Citron; flowers *reddish* externally; fruit pale yellow, knobbed at the point; oblong, not so warty as the Citron; uses similar. The common is as good as any. There are great varieties in the fruit, because seedlings are fruited more than in the other divisions.

Fourthly. The Lime *(Citrus acida)*: leaves without wings at the base; flowers white and small; fruit globular and small; acid more bitter than sharp—used in confectionary, &c.

Fifthly. The Shaddock *(Citrus decumana)*: leaves much larger, but in other respects similar to the Orange: flowers large and white; fruit large, greenish yellow, roundish, but flattened at the ends; juice cool and refreshing; is considered, however, more beautiful than useful. As size here is an object, the variety termed the largest-fruited should be chosen. The Kitley Shaddock is the hardiest—reared at Kitley, in Devonshire.

I have already incidentally alluded to the circumstances in which the Citrus tribe may be cultivated; these are—

1st. Against walls with a south aspect, or nearly so. If the wall is hollow, all the better; if flued or piped for artificial heat, better still. But waving all these advantages, we shall suppose the spot to be thus occupied as a sheltered nook near a friend's house, and that neither firing nor glass is to be used. The site should be made thoroughly dry. The compost should be raised *above*, not sunk below, or placed on a level with the surrounding soil. It should be fibry loamy soil, with little manure of any kind (and that hardened by drying) intermixed with it. Instead of manure, it should be kept open with pieces of charcoal, sandstone, and lime-rubbish. The orange requires rich feeding; but that can be given by rich surface-dressings and manure-water. As much as possible of the surfacings of one year should be picked off before the other is put on. This will tend to preserve the open fibry nature of the soil much longer. A large space need not be made at first; it will be best to make additions of fresh compost as needed; it need not be deeper than eighteen inches. The plants chosen must be large, and well-feathered to the bottom. The roots must be disentangled, and spread out in the compost. The beginning of June will be a good period for planting. The plants must be syringed several times during the day, and shaded from bright sunshine sometime afterwards. In fact, until thoroughly used to it, oranges out of doors would be the better for a gauze netting in very bright days in summer. The preparations for winter would consist in a broad temporary coping, and wooden shutters reaching from the ground to the coping. The best mode of applying these will at once suggest themselves. They may be partially, and frequently wholly, removed in fine days in winter. Growing in such soil, the wood will be well hardened;

and in severe weather the plants may be thus boxed up for weeks without sustaining injury. The light, however, should reach them *gradually*. The roots will not bear the cold that the tops will, and, therefore, they should be well covered with litter, and that covered with a material that would exclude wet. Boarded shutters will be the neatest for putting over the trees, and best from their non-conducting qualities. When expense is not minded, glass sashes may also be used, with these covers over them when needed. In this manner the first oranges in this country were cultivated 250 years ago, at Beddington, in Surrey, and bore splendid crops until they were killed by neglect in 1739, 1740. At Salcombe, in Devonshire, all the varieties are thus successfully cultivated with the protection of reed hurdles, which sometimes remain on for months. At Luscombe (C. Hoares, Esq.), splendid fruit of all the varieties used to be grown every year. At Coombe Royal (John Luscombes, Esq.), fruit equalling those from foreign countries used to be grown every year; and I suppose still are so grown. Wood covers were found to be the best. I have had oranges in sheds, and in the open air, in very low temperatures, and judging from this, as well as the above facts, I should come to the conclusion, that about London, and north of London, provided the roots are kept comfortable and dry, they would only require against a wall a little more attention than is requisite for the myrtle in similar circumstances. Many, therefore, who may have no greenhouse, if they cannot reach the length of obtaining very fine fruit, may, with a little trouble and attention, procure what is often deemed a greater luxury still—abundance of orange flowers, either for bouquets or distillation, &c.

2nd. In pots and boxes. To produce the best effects in such circumstances, the plants should be large, with clean upright stems. To attempt to raise them to such a size, in our climate, from seed or cuttings, would be nearly as preposterous as cultivating the vine for wine making. Plants must, therefore, be brought from the nurseries imported in their tubs from Italy, &c.; or, if we would save expense, and not mind trouble and labour, we must be satisfied with obtaining in a rougher way plants with small heads, no great command of roots, but with nice clean stems, as they are often seen standing in bundles at the shop-doors in London. Their appearance is anything but captivating; but if perfectly sound, they will repay your patience and attention. The vital powers are not extinguished, they only want arousing. If you had stoves and bark beds, &c., there would be little difficulty. I will suppose, however, that you have none of these things; that a structure, a go-between the shed and greenhouse, is all you possess for wintering these. A moist heat is the first thing to be thought about. Dung from the stable, sweetened, will secure you that; if mingled with tree leaves, it will ensure the heat being milder, and more continuous and equal. Build your bed about two feet in height, as frequently detailed, and a little larger than will afford standing room for your plants. If you had a cucumber box, that would be of no use, for your plants had better stand upright. A little foraging would generally bring to light some old doors, boards, and opaque substances, with which you could form two or, better, three sides of a sentry-box for holding your plants. Failing old sashes, the top and south sides, at least, should consist of glazed or varnished waterproofed calico. To do it neatly, the south side or part of it should be in the shape of a door, that you may examine the plants at pleasure. Four slips of wood, with a bracing in the middle, having the calico tacked to it, hinged on one side with stout leather, and fastened on the other side with a nut turning on a nail, would make it all complete. When once finished and put up securely in *no* conspicuous place, it will form a standing hospital for invalids, and where many of the not pleasing, but necessary operations, such as fumigating, may at times be performed.

While all this is going on, the poor plants must not be lost sight of. The distention of their vessels by the absorption of moisture is the first thing to be thought about. Turning them head and heels into a long bathing machine filled with water, kept about 70°, for at least a dozen of hours, would just be the thing. The second best would be to plunge roots in water in a tub so heated for six hours, pouring on the stems frequently, and then to pack both roots and stems in moss or litter, kept moist for a day longer. Then prune the roots, and cut in the head as far as you can to secure good remaining buds; transfer them to as small pots as possible, using light loamy soil, with the least sprinkling of leaf-mould; and set them at first on the surface of the bed in the *hospital*, but plunging them as soon as the bottom-heat at the depth of the pots would not much exceed 90°. In hot days sponge the stems, and let them have a vapoury misting from the syringe, and let the surrounding boards, &c., be moist, *but give no water* to the soil in the pot until fresh roots are being freely produced. When growth is freely proceeding, air should be gradually given, and then the plants be removed to the house, where they should remain for that season. Before all that is accomplished, the dung-bed may require forking-up occasionally, and the addition of a little fresh material. The same means may be successfully employed for restoring sickly orange plants, as well as many other hard-wooded genera in similar circumstances.

The same treatment in such cases must be adopted for obtaining large standards for the conservatory, whether grown in tubs or boxes, or planted out. I have been disappointed, more generally than otherwise, with the result of keeping such large plants in houses in winter, and then transferring them with great labour to the sides of walks, &c., in summer. Various reasons may be assigned for this. One is, that the plants frequently are deficient in a healthy green appearance. This arises: 1st. From allowing the plants to get too cool, especially the roots in winter; the medium temperature should be from 45° to 48° in winter. The house may be much lower, provided the boxes, &c., are packed in dry litter. If boxes are to be used, wood is better in these circumstances than slate. 2nd. From over dryness; and yet in winter it is better to prevent the too free *escape* of moisture than to *give* it with a lavish hand. 3rd. Bringing the plants from dark-roofed houses without previously giving them abundance of air, or placing them at first in a shady place. 4th. From allowing them to remain out too long in the season.

Another source of disappointment arises from the fact, that whether studded in flower-gardens or close to the dwelling, the sight of the tubs alike tells you the plants are not at home, and breaks in upon the unity of expression and feeling. I lately saw a beautifully grouped flower-garden, the effect of which was greatly marred by sticking over every available spot of an artistic structure in the centre with common *red pots*, of all sizes and dimensions; and almost equally out of character are large slate boxes, or green painted tubs, close to a stone coloured mansion; though with the orange-trees themselves these would be pleasant associations. How obtain the pleasure without the drawbacks? 1st. By having baskets made in separate pieces, and with one or two tiers, the orange occupying the upper one. 2nd. By taking a leaf from Mr. Beaton, and having artistic and beautiful coverings for the square boxes. 3rd. By sinking the tub or box into mother earth, and covering with moss or turf, with precautions, however, for securing ventilation round the box, and thorough drainage from its bottom.

R. FISH.

(To be continued.)

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT WILL THRIVE WELL IN POTS.

BURLINGTONIA RIGIDA (Stiff-stemmed B.); Brazil.—Flowers purplish white, with streaks of pink. A very beautiful plant, but somewhat difficult to flower. 31s. 6d.

Culture.—The best way to grow this plant is to place it in the middle of a large pan, well drained, in a mixture of chopped sphagnum, very turfy peat, pieces of charcoal, and broken potsherds. It flourishes in the hot humid forests of Brazil, shaded from the sun, on branches of trees, where it can obtain no nourishment but the moisture arising from the humid atmosphere whilst it is growing. To imitate this, place the pan containing the plant in a shady part of the Indian house, and when growing freely during the spring and summer months, syringe it abundantly every day with such a fine-rosed syringe as to make the water fall upon it like dew. As the shoots grow bring them gently (for they are very brittle) down to the level of the pan, and pin them down with hooked pegs. Continue this till the surface of the pan is covered all over with shoots, and even then keep pegging them down, tier upon tier; they will then become strong and healthy. As the autumn and winter months progress, give the plant less water and less heat, thus inducing a state of rest.

CALANTHE MASUCA (Masuca is the Indian name); Nepaul.—Sepals lilac inside, and whitish outside; petals the same colour inside and brownish outside; lip heart shaped, and of a beautiful violet purple. The flowers are produced on a spike eighteen inches high, and are large and numerous. It is a very handsome species, and continues a long time in bloom. As the flowers die they change their colours to a beautiful coppery hue. Very desirable and easily cultivated. 63s.

C. VESTITA (Clothed C.); Java.—Sepals and petals pure white; lip pure white also, with a deep rose-coloured spot in the centre. This species has large whitish pseudo-bulbs, from the base of which, when strong, the flower-stem rises to the height of 18 inches. It then curves gracefully, producing eight or ten of its truly beautiful flowers, which appear at a time (December) when flowers are scarce. 63s. There is a variety with a yellow spot in the centre, which is not so handsome.

C. VERATRIFOLIA (Veratrum-leaved C.); Java and Manilla.—The whole flower is of the purest white. Though an old species—introduced from the East Indies in 1819—and now pretty common, yet everybody that has the means ought to grow it, not only because it is very beautiful, but because it lasts a long time in flower, and is moderately cheap. It will thrive very well even in a common stove, with ordinary care. It may be grown to a great size, and is useful then as an exhibition plant. Our readers may remember that in THE COTTAGE GARDENER reports of one of the exhibitions at Chiswick and the Regent's Park, plants of this species were described with 12 and 14 stems of their beautiful flowers to each plant; and any one may grow them to that size with very moderate means, and the ordinary attention of repotting into larger pots as the plants increase in size. 10s. 6d.

Culture.—These fine plants being all terrestrial orchids require the same treatment in regard to soil as the genus *Bletia;* but as they are, with the exception of *C. vestita*, evergreen, they must be kept constantly moist at the root, but in a less degree in winter than summer; and, also, as they are natives of India, they must be kept warmer in the summer than Bletias. *C. vestita* should have a different treatment. It has pseudo-bulbs, and, therefore, should have no water given to it after Christmas till it begins to grow in March. It may then be repotted into fresh compost, and be watered in the usual way.

CATASETUM.—A large genus of plants with flowers of the most grotesque shapes, and, what is still more wonderful, they sport one into another, so that this year the plant will produce flowers proper to its described species, and next year it may produce flowers belonging to a widely different species, perhaps even an allied genus, such for instance as *Monachanthus viridis*, which is sometimes seen growing on *Catasetum tridentatum*. Where there is a house large enough to afford room amongst better things, it is desirable to grow a few of the handsomest Catasetums, such as those we will now particularize.

C. BARBATUM (Bearded C.), called by some *Myanthus barbatus*; Demerara.—Sepals and petals green, spotted with purple; lip pink or green, with a delicate fringe surrounding the edge. 31s. 6d.

C. DELTOIDEUM (Triangular-lipped C.), or *Myanthus deltoideum;* Demerara.—Sepals, petals, and lip are of a dark greenish purple, marked with stripes and spots of dark brown. The lip being of a triangular shape, at once distinguishes the species. It is a really curious plant, worth growing. 42s.

C. INTEGERRIMUM (Entire-lipped C.); Guatimala.—Sepals and petals of a purplish colour, spotted with brown; the lip has the inside yellow richly blotched with purple. The flowers have a powerful scent, like *Stanhopea graveolens*. The leaves are large, measuring four inches across, and a foot long. 42s.

C. INTEGERRIMUM, *var.* INTERMEDIA VARIEGATA.—This is a pretty variety from Brazil, with the sepals and petals of a rich lilac purple; the lip is white, with yellow centre; lamellæ or plates on the lip are red, whilst on the *C. integerrimum* they are white. A very rare plant; not on sale.

C. LAMINATUM (Plated C.); Mexico.—The flowers are large and greenish, spotted with purple; lip white, with a broad plate rising up in the centre, running along the centre to the end. There is a variety with the whole flower spotted with dark purple. A beautiful species, but very rare. 84s.

C. LONGIFOLIUM (Long-leaved C.); Demerara.—The whole of the flowers are of a bright orange, slightly bordered with violet, on a curving raceme thickly set with blooms, and frequently a foot long. A very fine species, perhaps the finest of the genus. It is very scarce. 105s.

C. NASO (Trunk-flowered C.), or *Myanthus naso;* Carraccas.—Sepals and petals nearly white, tinged a little with greenish yellow, thickly spotted with rich crimson purple; the lip is lengthened out in a most extraordinary way so as to appear something like an elephant's trunk. Curious and handsome. 31s. 6d.

C. SACCATUM (Bagged-lipped C.), or *Myanthus saccatus;* Demerara.—Sepals and petals pale yellow, spotted with rich purple; lip bright yellow, thickly spotted with crimson dots. The form of this part of the flower is the most extraordinary of this most singular formed genus, the middle of it being swollen out underneath, and on the upper side there is a narrow opening which leads into the swollen part, forming a conical chamber or bag, whence its specific name. A species well worth growing, for the flowers are very large, curious, and handsome. Scarce. 63s.

C. TRIDENTATUM (Three-toothed C.); various parts of S. America.—This is the commonest of the whole genus, and sports frequently into all kinds of monstrosities, on which account alone it is worth cultivating. There are several varieties named *C. Claveringii*, *C. floribundum*, *C. macrocarpum*, and *C. Wailesii*, all of which are liable to sport into each other. The prevailing colours are yellow, yellowish-green, and brown. Sometimes they come all green, especially *C. floribundum*. 10s. 6d.

Culture.—The principal part of the genus are natives of the hottest districts of South America. They are mostly found growing on either trees standing singly, on the highest branches, or on trees growing at the edge of the forest. Here these plants receive the full amount of the sun's rays, and, consequently, in this country should be exposed to as much light as possible. But as our plants are under glass, and we have many dark days, the effect of full exposure to the sun might burn the leaves, it follows that it is more safe to give them as much light as we can, but shade them from the rays of the sun, especially during the summer months, when the leaves are growing, and are young and tender. The compost to grow them in should be—very fibrous peat, two parts; chopped sphagnum, one part; and small pieces of charcoal and broken potsherds, one part. This will form an open material to grow them in, and will allow the water to pass off freely. The pots ought to be rather small in proportion to the plants, and should be half filled with broken potsherds for drainage. The best time for potting is when they begin to grow. In summer, during the growing season, water moderately at the roots, but be very sparing of the syringe. In winter they should be without leaves entirely, and should then have all the sunlight the season will afford, and no water whatever, unless the pseudo-bulbs shrink very much. See the method of potting orchids described at the commencement of the third volume of THE COTTAGE GARDENER.

FLORISTS' FLOWERS.

THE trying season of dark winter is now fast approaching. We have already had some nights of sharp frost; and we trust our readers have profited by our warnings, and preserved their pets from its injurious powers. *Auriculas* and *Polyanthuses* require constant attention in covering up by night, and exposing to the full light during the day. Give plenty of air on all favourable occasions. Should the frost prevail above the power of the sun in the day, give air only at the back, by tilting up the lights, and shutting up early in the afternoon. Be careful in the application of water, and give it, when absolutely necessary, only in the morning of fine days, that the surface of the soil may become dry before closing up for the evening. *Carnations* and *Picotees* require similar attention. If they are kept too close now they will be apt to mildew and draw up weak and spindling. *Dahlias*, look over occasionally, and clear away all mouldy stems or decaying roots. If these are permitted to remain the mould will soon spread to the sound roots, and cause them to perish also. *Hollyhocks*, if strong, may yet be planted where they are to flower. *Cuttings* lately struck had better remain in pots under the protection of a cold frame, covered up in frosty weather with mats. Look over all the frames constantly for *slugs*, as they will now be prowling about in search of food in frames and pits. T. APPLEBY.

THE KITCHEN-GARDEN.

ARTICHOKES.—The *Globe artichokes*, if not already protected as previously recommended, should be attended to immediately, by placing about them dry leaves, fern, or dry mulch of some kind, with a thin casing of earth on the outside to keep the wind from disturbing the covering. *Jerusalem artichokes* should have their stems cut off and laid over them, with some other rubbish for a slight protection, in case the ground should become so much frozen as to prevent their being taken up when required; or the stalks may be tied up in bundles whilst dry, and turned to some other account, whilst the tubers of the artichokes may be trenched out of the ground, and again planted with the middling-sized tubers *whole*. Plant them two feet apart in the rows, and let the rows be four feet apart, leaving the soil in ridges as the work proceeds. The best tubers may be stored in cellars, or be earthed over in ridges, and if protected a little in order to keep them from getting dry and shrivelled, no frost will injure them. The small ones, or any that can be spared, may be stored for the pigs, or more especially for poultry; all kinds of which, as well as the gold, silver, and common pheasants, are remarkably fond of them.

ASPARAGUS.—That which is intended to be taken up for forcing should be surface-protected, either by the manure that is intended to be trenched in for the next crop, or with mulch of some kind, so that in the event of frost the quantity required may without difficulty be taken up. Asparagus at the present time in cut, should be encouraged by applications of tepid water, with a little salt dissolved and some liquid manure mixed with it, which will greatly assist its growth. Take care that the bottom-heat at the commencement of forcing is very moderate; if necessary to hurry the asparagus on, apply surface-heat; if in frames or pits only depending on fermenting materials, apply the heat at top instead of at bottom, which may be done by placing the linings on any kind of refuse prunings, furze, heath, or refuse brush faggots, &c.

CELERY.—The principal winter crops will ere this have had their final earthings, and should now have a provision made for protection when frost sets in; if the celery has been cultivated as recommended by us in trenches or beds five or six feet in width, with the rows placed crossways in such beds at from eighteen inches to two feet apart, according to the season of planting, a quantity of good sized, well-grown, and well-blanched celery has in all probability been secured with but little trouble in protecting it. We have at this time an abundant crop, varying in height from four to five feet, and weighing, with the outside leaves on, each from five to seven and eight pounds. We always trench it out as required, leaving the celery bed as we proceed formed into sloping banks, and in rough ridges crossways of the banks. On frosty mornings these ridges are forked over, or if frozen too hard for the fork, then the pick-axe is made use of—a beautiful tilth being thus secured for succeeding crops.

CAULIFLOWERS.—This vegetable requires during the present month a liberal admission of air, but protection against severe frost should, at the same time, be attended to. All decaying leaves should, of course, be kept cleared away, and the surface of the soil be kept healthy about the plants by frequent stirrings and dredgings of dry dust applied about them, particularly in damp dark weather; as slight protection only is required even should the frost be very severe. Those in pots should be duly shifted, kept close to the glass, and water applied as required; for if their growth be in any way checked by dryness, it is probable that at the growing season, when planted out, they will flower instead of starting vigorously. Those pricked on borders, sloping banks, and other sheltered corners, will now require attention, and occasional applications of dry dust.

Peas, beans, young *lettuce plants, Horn carrots, radishes*, &c., will require the same kind of attention as the cauliflowers. Applications of dry dust about such things for the next two months will always be found most valuable in preventing canker, shanking, &c.; if mildew prevails amongst the young lettuce or any other protected plants, apply dredgings of fresh slaked lime and wood-ashes mixed in equal parts. This preparation we have found a most effectual and sure remedy.

If the space has been manured and dug between the small fruit plantations, and there is still any quantity of *colewort plants* in the seed-beds, plant them out thickly in such places. We have seen some that have been thus

attended to during the present month that have proved a real treasure in early spring after a severe winter, when, to a great extent, the early plantings have been destroyed; and we are always careful ourselves to put a quantity in such places, which are certain of proving acceptable in due season. JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

THERE are two things more especially the bane of the peasantry, more especially the ruin of health, morals and domestic comfort in this our favoured land, and these two things are, beer and tobacco. Short-sighted was the policy and evil the hour that established the system of beer-houses throughout the country; for a more demoralizing, pernicious, dangerous scheme could not have been devised to augment the revenue. Public-houses were evils certainly, in some respects, but then they were only to be found in villages; and places of public refreshment, if conducted with strict propriety, are necessary and useful. But beer-houses taint the air. At every turn, in every lane, and road, and byepath, the poor labourer is tempted to spend his children's money in these unholy precincts; he cannot return from his work without passing the door whence issue fumes of tobacco, and noisy voices, and unseemly language; and to those whose hearts are strangers to the love and fear of God, how attractive are such scenes! If we believe that "righteousness exalteth a nation," how can we expect to prosper as a people, if our national measures promote sin? It used to be brought as a reproach against the poor Irish, that starving as they professed to be, they could always find money for "*the rint*" exacted by their arbitrary leader. Now a far heavier sin lies at the door of the English peasantry, for however wretched and starving may be the wife and children, yet the man who loves beer will always find money to procure that wicked and ruinous indulgence. Tobacco, too, where can be the pleasure and profit of smoking? It is a sort of intoxication in itself, and leads to drinking. How many pence are spent in it that would give a meal of bread or rice to a child; and how much disease and misery of mind will that man escape who resolutely resists his passion for tobacco and beer! If for one month only, or even one week, the father would put by every halfpenny he is accustomed to drink and smoke, he would be surprised at the useful little sum that would be found in the corner of the cupboard when the stated time was over.

It is astonishing to observe the difference in the *look* between the sober man and the drinker. There is always a cheerful, clean, open air about the former, and a heavy, sodden, dirty, *ashamed* face in the latter character. Vice always marks the man, however he may try to conceal it; and it marks his family too; for it is *impossible* for his wife and children to look well clothed or happy when he drinks half his wages, and comes home cross, and violent, if not in a state of positive intoxication.

A man is made miserable by drinking, and then he drinks again to forget his misery! How sin entraps us! How "the roaring lion" decoys us into perdition! I am sure that nine men out of ten would flee as from a serpent, if they only knew that when tempted to enter a beer-house Satan has hold of their hand, and, in all his hideous deformity, is dragging them on. One cry to Him who holds the lion's chain,—one moment's sharp resistance, and he would speedily flee from them.

We were speaking to a basket-maker, some days ago, who for many years kept a little public house in the adjoining parish, and we were greatly pleased to find that he had given it up, and settled himself in a cottage, attending only to his trade. He told us he had begun to suspect that he was not in the right way, that "no good" came of selling beer, and encouraging men to drink and smoke, and break the Sabbath, and that neither his own health nor happiness were the better for residing at "The Swan." He left it, and both his "Missus" and himself found themselves better and happier than they had ever been before. He had not been, in any way, a drinker, but he had taken more than he needed; and now that he has given up all, his appearance has changed too: he is better clothed, happier-looking, and in regular work.

I have no doubt that his experience is that of every one who takes the same wise step. No one can possibly look more wretched than Charles S—— the mason, who comes to his work with a pale, swelled face, and a languid step. We have sometimes met him returning from the public-house in dirty working clothes, even when the sweet church bells were chiming; and his wife looks the picture of woe, as she stands at the door with her poor little children round her.

It is wonderful that a man can look at his family when he knows that he is depriving them of food and clothes to gratify a fondness for drinking; there is such cruelty and selfishness in his conduct, that it cannot fail to make him angry with himself, and wretched, in spite of the unmanly pleasure he may take in the taste of the beer. He must have a heart of stone to throw away sixpence after sixpence, when his little ones are running about almost without shoes to their feet, and crying to their mother for more bread. But it would be better for him if these sixpences were *thrown away*. Alas! they are entered in a long and heavy account, which will too surely appear against him *one day, soon*. Not one of them is lost; and perhaps when he leasts expects it, he will be called upon to reckon it up. Not many weeks ago, an old man, who had led a life of sin, went home, after taking a pint of beer among the worthless company in a beer-house, sat down in his chair, and *died!* Who can tell when he quits the same favourite haunt, whether he also may not die as suddenly and quite as unprepared?

It is not the wife and children only against whom the man who likes drink offends. There is a God who is "of purer eyes than to behold iniquity," whose Word he casts behind him, and whose power he defies,—whose mercy he refuses, and to whose calls and warnings he alike closes his ears. Let him, even if he can resist the ties of nature, the wife and children who look to him for support, still tremble at the thought that "for all these things God shall bring him to judgment." His cottage, which might be the abode of harmony and love, is a scene of destitution and unhappiness: his daily labour, which might be a cheerful and sanctified work, is a weary, distasteful toil; and his weekly earnings, which might be blessed and increased, are the source of additional sin;—yet neither cottage, nor labour, nor gain, miserable as they are now, can compare with that dark abode, that unceasing agony, and those terrible wages, which are the portion of *all* who keep not the law of their God.

WALKS.

I WISH Mr. Beaton would give us his promised instructions for the proper making of walks. I see he refers to it again in his review of Mr. Kemp's work on "Landscape Gardening." The construction of walks does not seem to have attracted the observation of any one to the extent it ought to do; at least, what little I have read tends all one way—an excavation more or less deep filled up with matter foreign to that of the adjoining ground. Having, during the last few years, formed several walks over ground exceedingly retentive of water, I thought there could be no better way than enticing it to the foundation of the walk, and from thence conveying it away by drains running longitudinally underneath. The details of my plan will be found recorded in THE COTTAGE GARDENER some months back, followed by

promise from Mr. Beaton of furnishing particulars whereby walk might be formed up the steep sides of Snowdon, Hellyn, or Ben Nevis, capable of resisting the desolating effects of thunder storms and other casualties. This piece of information I have looked for anxiously, as I hesitate not to confess myself not at all well acquainted with making good useful walks of common materials in hilly places. Cesspools or sinks at the sides, cross channels, gratings communicating with drains, and sundry other contrivances, I have used with varied results, but I presume these appendages may be dispensed with in Mr. Beaton's plan. Certainly they detract very much from the beauty of the walk. But there are many objectionable things in this world which we cannot get rid of, and I presume these may be classed in that category until some master mind points out a cure. One thing need not be forgotten, the cure is of no use if the materials for making it be not accessible by reasonable means. We all know that a flight of steps might be made to reach the top of Mont Blanc, but who would undertake to keep the snow swept off them? An asphalte walk might also be formed anywhere, but its appearance is anything but agreeable, and for hilly places very objectionable; besides, the expense places it out of the question, where, perhaps, a mile of it is wanted. So that, taking gravel, ashes, sand, shells, and similar substances, as well as stones of various kinds, brickbats, &c., for your materials, the question is simply this: in what manner can the best walk be made in the cheapest and most durable way of such materials, due regard being had to appearance? It is far from my wish to fetter the case by any conditions, but hope it will be frankly answered in such a way as to be available to many of your readers, as well as to—L. N. V.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

FUCHSIA NOT FLOWERING (*Lewis*).—The leaf sent we presume to be a small one of *Fuchsia Cordifolia*, a free grower, but rather shy bloomer at the best of times. Keep it in a very light part of your greenhouse, and with ordinary treatment it will bloom in winter and spring. This will be hastened, if the wood is pretty firm, by allowing it to get rather dry and cool for a week or two, and then keeping it warmer, and giving it plenty of light and moisture. It flowered most generally with us in winter and spring, and, therefore, should not be rested at *these* periods, as the most of the others like, with the exception of *serratifolia*, &c. It is a native of Mexico, and where room is scarce it is not worth growing, as many British hybrids are far superior.

ARRANGING A GREENHOUSE (*C. A.*).—Yours is 16 feet by 12, and you wish to preserve the back wall for creepers. This must depend upon taste and the wishes of the possessor. To keep the most plants, with justice to the creepers, we would allow a space of 3½ feet, at front and ends, for a shelf and pathway; 3 feet at back, or 2½ feet for border and pathway; and then you would have 5½ feet or 6 feet as the base of a stage in the centre, which might be either *flat* or, still better, *raised*, so as to have the highest terminating shelf in the centre, and two or three more descending, like steps of stairs, downwards on each side. This would not only allow you to store more plants, but in summer you would keep them longer in bloom by removing them from the south to the north side. If large plants are your object, they might stand on the floor without a stage at all; and then you might bring the creepers down the rafters, and have a wider shelf for small plants in front. Estimates have been given, and you will lately have seen what others have managed to put up houses for; but then they managed it *themselves*, which is a different affair from employing tradesmen. Further than this we cannot well go. Have an estimate of everything before you begin.

CAMELLIA BUDS FALLING (*S. W.*).—This will happen from three causes: first, when it is an effort of nature to relieve itself when the buds are so thick that there is not room for the flowers freely to expand. Secondly, when the drainage is bad, and the soil becomes sour and waterlogged. And thirdly, when watering has not been given efficiently, so as to wet the soil thoroughly to the bottom of the pot. If your soil has much peat, give weak manure water alternately with the clear. Avoid the dribbling system. By its use thousands of plants are ruined. The surface soil for an inch or two may be moist, and the rest of it as dry as if it came from the deserts of Sahara.

ROSES (*Ibid*).—The roses will not open, and the plants are short lived, and you attribute your failures to strong eddy winds and the smoke of a town. The last, we presume, is your chief enemy. You are right in the circumstances of giving up *standards* and resorting to dwarfs; and we would advise you to syringe the plants frequently with clear lime water as the buds are breaking, and with clear water frequently afterwards until the flowers are opening. We would plant every sort you name, and prune close; and thus there will be less of the smoke-encrusted wood left; and though you will have fewer flowers, want of quantity will be made up in quality. To secure masses of bloom, we would recommend the China—such as the *Common, Cramoise superieure, Abbe Mioland, Belle de Florence, Fabvier*, and *Mrs. Bosanquet*; cutting them well in either in autumn or, better still, in spring, and manuring well. Bourbons—such as *Armosa*; and various Teas, on their own roots—such as *Safrano, Devoniensis*, &c., we think would also answer well, protecting them with moss and branches during winter, and cutting well down in April. Strong shoots, with bunches of flowers, would come from the bottom, and in succession, and at a season when the nuisance of *smoke* is at a minimum.

ELDER-FLOWER WINE (*Elizabeth*).—No. 6.—To make white elder wine very much like Frontignac, boil 18 pounds of white sugar with six gallons of water and two whites of eggs well beaten, then skim it, and put in a quarter of a peck of elder-flowers from the tree that bears white berries; do not keep them on the fire. When near cold, stir it, and put in six spoonsful of lemon juice, four or five of good yeast, and beat well into the liquor; stir it every day; put six pounds of the best raisins stoned into the cask, and tun the wine. Stop it close, and bottle it in six months. When well kept this wine will pass for Frontignac.

No. 7 (*Great Aunt Mary*).—To six gallons of water put 18 pounds of lump sugar, boil it half an hour; when new milk warm, put to it a quarter of a peck of elder-flowers, picked from the stalks, the juice and peel of six lemons, six pounds of raisins, and a little yeast (we always spread ours on a dry toast, and take the toast off before we barrel it); stir it often for three or four days, then put it into a barrel; it will be ready to bottle in six or eight months.

HERBARIUM (*C. B.*).—When we have a large-rooted specimen to mount in this, we split it and remove one-half, or even two-thirds of its thickness, and fasten it down with its flat side against the paper.

TRELLIS FOR HOUSE-FRONT (*K. O. T.*).—As your house is stuccoed and will not bear nails, and yet you wish to have a wire trellis, have a frame of wood made of deal rods about two inches square, and the rods as far apart as will admit the wire netting to be fastened to them with small staples. The rods may reach from the roof to the ground, and be framed as any carpenter will tell you.

SPIRÆA PRUNIFOLIA (*H. J.*).—The flowers of this are white, generally double, and very pretty; a native of China; deciduous and hardy in sheltered places. Flowers generally about midsummer. As it is a new thing, you cannot err in placing it against a wall at first.

STENOCARPUS CUNNINGHAMII (*Ibid*).—We can hardly tell you when you may expect it to bloom, but your specimen is a good one. If you had one leader instead of four, it would, perhaps, have been as well; but the cutting of them away *now*, after being four feet in height, we should not think of doing. To remedy the crowded state of the leaves, cut out a few, and tie out the stems as far apart as possible.

FUCHSIA MACRANTHA (*Ibid*).—We have had no experience with it, but have not heard it was peculiarly difficult to flower. *Fuchsia spectabilis* generally blooms best in autumn, winter, and spring, as is the case with the old *Cordifolia* (see answer above) and also *Serratifolia*.

STREPTOCARPUS REXII (*Ibid*).—This is an old plant and worth growing, but you need not pot off too many of your seedlings. It produces abundance of light blue tubular flowers, and the seed vessel is very peculiar.

FUCHSIA CORYMBIFLORA (*Ibid*).—This large standard we should treat as you propose. If the wood is pretty well ripened, it will stand the starving system well during the winter; and when examined at the roots and pruned, not too much, in February or March, you will have less growth and more blooms. *Habrothamnus fasicularis* generally blooms from April to June.

OXALIS BOWEII (*A Constant Reader*).—The leaves sent are right. So luxuriant, planted in August, and not yet showing bloom, we fear that you will look for flowers in vain. Instead of treating of the reasons, we would rather tell you *how* to ensure success in future. Thus, keep the plants in the greenhouse full in the light, and give water as needed as long as the leaves keep green; when they turn yellow, refrain from watering, and then afterwards lay the pots on their broadsides below the stage, or upright, where no water will reach them. Sometime next summer the bulbs will begin to push; then, but not till then, pot them, and you will be sure to have plenty of flowers. The other leaf sent we do not recognise; we do not think with you that it is an Oxalis.

PLUMBAGO CAPENSIS (*Ibid*).—You may cut this in as much as you please, if you confine yourself to the one-year wood. It is the long young shoots produced next season that will produce the flowers, and then they may again be cut off when the wood is ripened.

MANURE FOR GERANIUMS (*W. J. W.*).—Guano, soot, and salt are very good things in the hands of those who have sufficient chemical and practical knowledge to use them properly, but they are poisons with other people; therefore, we make it a rule not to recommend these strong and most dangerous ingredients, even to practical men, for fear our less-informed readers might be led to use them and destroy their plants. Have you not seen all-along that when "put to the point," we have invariably placed these things in the same category with gunpowder? For pot-cultivation in general, have nothing to do with guano, soot, or salt, till you have won a prize in London with a pelargonium.

ANOMATHECA CRUENTA (*Ibid*).—Keep this pretty bulb dry till the middle of April, and then plant it two inches deep in a warm border of light rich soil, and it will flower and seed all the summer. Sow the seed

in March in a hotbed, and as soon as the seedlings are up, harden them off; and if you nurse them well to the end of May, and then turn the balls out along with the old bulbs, they also will bloom next autumn.

MADAME POMPADOR CHRYSANTHEMUM (*Ibid*).—This is a dark red and a dark purple also, and dark half a dozen other shades besides, if we had time to think of them. It is useless sending us stamps. Except in very special cases, we write no private answers; and we are often surprised that our correspondents wish to be *exclusively* informed on any point. It does not occur to them that, perhaps, five hundred of our readers are benefited as well in these simple answers.

HAWTHORN OR WHITETHORN (*A Subscriber*).—These are collected for nurserymen by women and boys. The price paid for them depends upon the crop. In plentiful seasons they give from 8d. to 1s. per bushel. They are collected into a long heap, covered with soil, and allowed to remain in the heap till the second spring after they are gathered. They are then sown, and come up the same year. For exportation, we should put small quantities of the berries in open canvas bags, and then hang them from the roof of a cabin, so as to be kept dry and cool. We can give no information as to the price per pound of the seed, but we think it would not be extravagant. Inquire of some nurserymen in your neighbourhood that grows thorns in quantities for sale.

CHALK DOWNS (*Sarum*).—We believe that these might be planted not only to the great improvement of the beauty of the neighbourhood, but also to the increase of the average temperature of the place, and to the pecuniary advantage of the proprietor. It so happened that when your note reached us we had some verses from a classic friend lying before us—verses written on one of such calcareous wastes (Compton Down), and not far from where Richard Cromwell passed the last years of his life, much more happily than he did those whilst the unwilling Protector of England. We must spare space for these rhymed good thoughts:—

I climb'd a mound of russet green,—
November's air was moist and chill;
I set me to explore the scene,
But all was wintry, sad, and still.

The distant view was cold and grey,
And mingled with the troubled sky;
Dark woods and fields extended lay,
Far as I bent my wand'ring eye.

I turn'd me—nothing fix'd my gaze,
Save here and there a sable yew,
And flocks which linger'd still to graze
On sloping downs of purply hue.

I turn'd me still, and then there rose
Before me, in a sheltered vale,
The Village Church, in sweet repose,
Lit by a sunbeam streaming pale.

Grey were its walls, its roof, its tower;
Around were shrubs in crimson dyed;
And elms that shed their golden shower,
Oft as the fitful breezes sighed.

The spot with warmth and brightness glow'd,
Amid surrounding damp and gloom—
As if to cheer the pilgrim's road
Who seeks his home beyond the tomb.

Behold him now in fancy's eye,
With furrowed brow and silv'ry hair!
His faded vigour tells how nigh
The end of all his grief and care.

Here, 'midst his penury and toil,
He finds refreshment, peace, and joy;
'Tis here he feels a Father smile
And promise bliss without alloy.

Nor think he feels but passing gleams,
That leave him cheerless as before:
No! here true hope's unfailing beams
In boundless, ceaseless, radiance pour.

That radiance, veiled from faithless eyes,*
Flows from the Eternal Fount above,
Where changeless reigns, beyond the skies,
The Sun of righteousness and love!

MILDEW (*A Lover of Flowers from Childhood*).—The "malady" on your crocus roots is overcome, we hope, long before this time; but as sulphur early applied, did not stop it depend on it it was not mildew, though it looked much like it. It must have arisen from one of a hundred kinds of rottenness which we term mouldy.

BIGNONIA RADICANS (*Ibid*).—This is now called *Tecoma radicans*. You may prune it close like a grape vine, and from the few eyes you leave shoots will come out next spring, which will flower at the end of the same season.

GLYCINE SINENSIS (*Ibid*).—This is best pruned just like an old pear-tree. It flowers in a manner between that of a pear-tree and an apricot-tree, on old spurs, on little snags (little side shoots), and on the bottom of strong young wood made last year. When you want to let a flourishing young plant go-ahead, it is a good rule to prune back, now, two-thirds of last summer's growth; and if it has filled its space, prune all the shoots back to a few eyes.

STANDARD PLUM AND CHERRY-TREES (*Ibid*).—These, five to six feet high in the stem, you cannot well manage by planting against a wall and then training down the shoots; but if you have head room for them upwards, or right and left, you might manage very well, by cutting off close the shoots from one side of the heads.

MENSURATION (*Patria*).—A thorough knowledge of this can be obtained from books, if you understand the principal arithmetical rules. *Practical Mathematics, Part* I. (price 4s.); and *The Key* to it (price 3s. 6d.), in Chamber's Educational Course will be your best guide.

DORKING FOWLS (*E. B.*).—We have the information you require, if you will send us a stamped envelope with your address on it.

LAND NEAR LONDON (*D. H.*).—To answer such a sweeping question as "how to make the most of your plot of ground?" would take the space in our columns sufficient to hold twelve of our monthly papers on "Allotment Farming." We can, therefore, only refer you to these. Buy the back volumes of THE COTTAGE GARDENER, and begin with reading what is said about "Allotment Farming for January," at page 133 of vol. i. We should be happy to answer any specific question when you are in a difficulty.

CELERY (*Grand Homme*).—We find *Nutt's Champion Celery* the best. It may be had of him at Sheffield. We never manure for *Potatoes*, but grow them on soil moderately fertile from manuring for previous crops. You may sow *Peas* now, if you take proper precautions to guard them from mice and birds. We never recommend dealers. Keep your *Hens* warm and feed them on stimulating food, as we have more than once directed, to make them lay.

FRUITS TRUE TO NAME (*J. B., Dublin*).—Write to any of the *first-rate* nurserymen near London.

CLAYEY SOIL (*P. M. H.*).—You have been rightly recommended to burn some of it to improve its staple. The top spit probably is the most fertile, so do not burn that; but if you burnt the next spade's depth all over the field, and then spread and dug the ashes into the top spit, you would change the character of your soil. We should also give it a good covering with lime and tanner's bark.

HOUSE SEWAGE (*W. W. B.*).—You may apply it a gallon to a square yard without any addition, provided the ground is vacant. Apply it just before digging for the insertion of a crop.

BLIND FOR GREENHOUSE (*Ibid*).—You will have seen that our correspondent J. B. uses only boiled linseed oil for rendering his blind waterproof; a still more effective composition for the purpose is given at page 123 of our second volume. If you cover the sides of your greenhouse you will better exclude the frost, but it adds to the trouble, and is not essential.

RIFTING LOGS (*Ludovicus*).—As we knew a man who was nearly killed in blowing up the root of a tree, we cannot recommend your plan. The eternal *ice* mentioned by Mr. Beaton, is in the central valley of some mountains in the Highlands of Scotland. *Skates* are not within our bill of fare.

COTTAGE GARDENERS' DICTIONARY (*H. T. H. B.*).—We cannot imagine how you have been mistaken; it is only published in *one* size, small octavo.

NAMES OF PLANTS (*Ornskirk*).—The rose of which you sent a bud, is *Lord Macartney's* rose (Rosa bracteata). It is nearly evergreen, a native of China, and was introduced into this country in 1795. There is a variety of it named *Maria Leonidas*, which is a pure white, and quite double, and a perpetual bloomer. (*A Subscriber from the First*).—Your shrub is the common Spindle-tree, *Euonymus europæus*; and your Ferns: 1. *Asplenium trichomanes*, and 2. *Polypodium vulgare*.

NAMES OF APPLES (*Rev. T. H. R.*).—1. Norfolk Beaufin. 2. Striped Beaufin.

TAYLOR'S HIVE (*S. S.*).—The bars in this are one inch and an eighth wide, and three-fourths of an inch thick. The hive should be 11¾ inches square, and 8½ inches high, inside measure. The top piece screwed on is *not* removed when a second hive is added. The second hive is added without disturbance, by withdrawing the slides. Buy the 4th edition of Taylor's *Bee-keepers' Manual*. It will save you more trouble and expense than the 4s. you will pay for it.

HONEY-CANDYING (*An Original Subscriber*).—The same thing which makes water freeze causes honey to crystallize—namely, cold. Very fine honey crystallizes much more readily than that of a second or third rate quality. If kept in the combs (by far the best way of keeping it), it will bear a considerable degree of cold without candying; but when drained, it is almost impossible to prevent it. Evaporation and fermentation are also connected with the candying or crystallizing. Honey put fresh into a vessel, hermetically sealed, would probably not crystallize. By keeping it in the comb, divided into small quantities in the cells, fermentation is prevented.

STOVE FOR GREENHOUSE (*W. E.*).—As you only require it to keep out the frost, a small one like that used by J. B., in his "Five-pound Greenhouse," will answer your purpose.

* Compare Malachi iv. 2 with Rev. xxi. 23.

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WEEKLY CALENDAR.

DECEMBER 19—25, 1850.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
	30.236—29.879	45—32	N.W.	0.03	5 a. 8	50 a. 3	rises.	☽	2 41	353
Sun's declination 23° 27′ sooner.	30.212—30.233	41—30	N.W.	—	6	50	5 a. 37	17	2 11	354
St. Thomas. Shortest Day.	30.491—30.394	35—29	N.E.	0.02	6	51	6 49	18	1 41	355
4 Sunday in Advent. Winter com-	30.530—30.519	37—28	N.E.	—	7	51	8 7	19	1 11	356
[monces.	30.572—30.516	35—22	N.E.	—	7	52	9 27	20	0 41	357
White Nun comes.	30.404—30.372	36—24	N.W.	0.02	7	52	10 46	21	0 11	358
Christmas Day.	30.530—30.326	38—28	N.E.	0.01	8	53	morn.	☾	bef. 12	359

Christmas Day, in the year 1717, died Mr. George London, birth and education we have been able to obtain no information, e career as a Nurseryman and Market Gardener will enable us some curious and interesting particulars before our readers o the enormous amount of vegetable produce grown by those n alone for the annual supply of London. Industry and strong sense—the characteristics which in after life obtained for Mr. he patronage of the nobility and gentry—were early discerned y his master, Mr. Rose, gardener to Charles II., of whom he ourite pupil for four years, and who then sent him into France er improvement in the art of gardening. Upon his return from inent he was engaged as head gardener by Dr. Compton, Bishop n, whose gardens and greenhouses at Fulham Palace contained variety of exotics than those of any garden establishment then nd. After a few years he left that prelate's service, and entered, ar 1681, into the successful speculation of the Brompton Park

His partners were Mr. Cook, gardener to the Earl of Essex; e, gardener to the Queen Dowager, at Somerset House; and l, gardener to the Duke of Bedford, at Bedford House, in the f which the gardens covered a portion of where now is Covent Market. In 1691, two of his partners having died, and the third e admitted into the firm a fellow pupil, Mr. Henry Wise; and ership of *London and Wise* was then as celebrated as that of Loddiges of the present day. Mr. Gibson, who visited their ment in the year following, says, "it has a large greenhouse, the glass and board, the north side brick. Here the king's *greens*,* ere in summer at Kensington, are placed; but they take but n in comparison of their own. Their garden is chiefly a nursery rts of plants, of which they are very full." At that time the overed more than one hundred acres; and the best contemporary es, Switzer and Bowack, agree, that if the plants were sold at a ch the stock would have realized nearly forty thousand pounds. ton Nursery," says Mr. Evelyn, "was the greatest work of the seen or heard of."

he Revolution in 1688 Mr. London was made superintendent of yal Gardens, with a salary of £200 per annum; and a Page of the irs to Queen Mary. He had the care of conveying Princess Nottingham, from the fury of the Papists, previous to the Revoing completed; he was, in conjunction with Mr. Wise, director all the gardens and parks of note in the kingdom. Soon after of Ryswick, he accompanied the Earl of Portland, Ambassador inary to King William, into France; at this time (April, 1698) the Observations on the Fruit Gardens at Versailles, which are reface to the abridgment of Mr. Quintinie's work, which he, in on with Mr. Wise, translated. On the death of King William, being appointed to the care of the Royal Gardens by Queen r. London chiefly devoted himself to his country business, nce or twice a year most of the considerable gardens in England. ccustomed to ride 50 or 60 miles a day: his northern circuit he d in five or six weeks—his western in about the same period—uthern and eastern districts he was occupied but three or four Switzer intimates that his knowledge of Botany was slight, his great, but the cultivation of fruit his peculiar excellence, though f all kinds of flowers and shrubs he was as skilful as any man in

Switzer is not much of authority when speaking of his excelldesigning, which he considers to have been not great. The of Wanstead House were began by him for Sir Richard Child in l were nearly his last undertaking; he died before completing ns of the Earl of Caenarvon, at Edger, in Hertfordshire. His nd continued exertion on horseback brought on a fever, which s death after an illness of a fortnight's duration.

ic plants were generally spoken of then as *Greens*, and this why the structure for their winter shelter came to be called a se.

Covent Garden Market, which we have incidentally mentioned, and to the supply of which Messrs. London and Wise contributed, is held in a square which is the oldest in London. It was commenced in 1631, at the expense of the Duke of Bedford, and from the design of Inigo Jones—a design never completed. It is an oblong of 500 feet by 400. The south side was occupied by the garden wall of Bedford House, and over this wall hung "trees most pleasant in the summer season." Beneath those pleasant trees, in this fashionable square of the metropolis, did the nurserymen and market gardeners have stands for the sale of their flowers and fruits; and so lucrative did these become, that moving his town residence to Bloomsbury-square, that of Covent Garden was abandoned to be a market, regularly chartered in 1671 "for the buying and selling of all fruits, flowers, roots, and herbs whatsoever." We have no space in which to trace its gradual increase, but must content ourselves with observing that in 1679 there were there twenty-three salesmen, rated at from 2s. to 1s. each; whereas now the market is rated at £4800. Besides Covent Garden, London has the Borough, Spitalfields, Farringdon, Portman and Hungerford Markets—that of Spitalfields being the great emporium for potatoes and brocoli, and that of Farringdon for watercresses. The following table, showing the aggregate amount of their annual sales (exclusive of Hungerford) from which we have no return, will give our readers some particulars on which to found an estimate of the extent of ground required for supplying one town with "fruits and kitchen-garden stuff."

Apples	686,000 bushels.
Asparagus (Covent Garden only)	69,000,000 heads.
Beans	132,000 bushels.
Brocoli (including Cauliflowers)	14,328,000 heads.
Cabbages	89,672,000 —
Carrots	16,784,800
Celery (Covent Garden only)	18,000,000 heads.
Cherries	169,000 bushels.
Currants	127,000 —
Endive (Covent Garden only)	2,000,000 heads.
Filberts (Covent garden only)	2,240,000 lbs.
French beans (Covent Garden and Spitalfields)	143,000 bushels.
Gooseberries	273,500 —
Onions (Covent Garden and Spitalfields)	506,000 —
Peas	434,000 —
Pears	353,000 —
Plums (Covent Garden, Spitalfields, and Farringdon)	141,000 —
Potatoes	3,892,040 cwt.
Raspberries (Covent Garden and Spitalfields)	26,000 bushels.
Strawberries	45,750 —
Turnips	29,450,800
Walnuts (Covent Garden only)	25,000 bushels.
Watercresses (Covent Garden and Farringdon)	84,825 cwt.

We may fairly add one-fourth more to each of the foregoing immense quantities, to include the Markets from which there are no returns, private sources of supply, and retail vendors obtaining their goods direct from the country. To the item Potatoes a still more vast addition must be made; for the great stores for these are in Tooley-street and Rotherhithe; and from these, in an average season, 1,200,000 sacks are delivered, each sack containing 168 lbs. of potatoes.

Meteorology of the Week.—At Chiswick, the average highest and lowest temperatures of these days, from observations during twenty-three years, are 44.3° and 33.5°, respectively. The greatest heat, 58°, occurred on the 25th in 1827; and the lowest cold, 10°, on the 24th in 1830. Observations during the same years, and at the same place, show that the night of the 25th of December, and of the 15th of January, are there, usually, the coldest in the year. On 63 days rain fell, and 98 were fine.

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ncluded, at page 94, our observations upon the f plants, by reconciling the apparently discrepant nents of Saussure and Hassenfratz, who respecsserted and denied that plants increase in weight heir roots are supplied with water only. Some of who, like Saussure, found that plants so fed do e in weight, sprang at once from the solid path of nent and concluded that water is their *sole* food. ven instituted some experiments to maintain this rroneous opinion, but all those experiments totally justifying such an induction; nor, indeed, are any experiments needed, for the experience of every cultivator of the soil, from Adam downwards, refutes such a conclusion.

In the first place, all waters contain earthy, saline, and organic matters: even distilled water is not pure, as Sir H. Davy has proved; and rain water, Margraaf has demonstrated to be much less so. No plants, growing in water only, will ever perfect seed; and the facts, that different plants affect different soils, and that a soil will not bear through a series of years the same crop, whereas it will bear a rotation of different ones, demon-

strate that each crop takes different kinds of food from the earth, and not that universal one, water, which is ever present and renewed.

So far, indeed, from water being the sole food of plants, they are injured and destroyed by its superabundance in the soils sustaining them. Such soils are always colder than well-drained soils, inasmuch as that the same quantity of caloric (heat) which will warm the earth four degrees, will only warm water one degree—or, to use the language of the chemist, the capacity for heat of water is four times greater than that of the earths. Secondly, the vegetable matters decomposing in a soil, where water is superabundant, give out carburetted hydrogen, acetic, gallic, and other acids, instead of carbonic acid gas and ammonia—products essential to healthy vegetation. Palliatives for such evils are the application of lime, or its carbonate (chalk), to the soils in which these acids have been generated; and, indeed, after they have been formed, such an application is essential, though the radical cure and preventive of recurrence — thorough draining, be adopted. It is not an extravagant assertion, that there is scarcely a garden existing that would not be benefited by under-draining. Every gardener knows the absolute necessity for a good drainage under his wall-trees and vines; but few gardeners ever think, for a moment, whether there is any escape, any outfall, for the water he has drained from immediate contact with the roots of the above-named favoured trees. Every garden should have drains cut, varying in depth from two to three feet, according to the depth of the soil, with an interval of twenty-four feet between the drains. At the bottom of the drains should be placed one-inch pipes: these should be well puddled over, six inches deep, with clay, and then the earth returned.* They should have an outfall into a ditch, at the least elevated side of the garden. By having the pipes with a bore no larger than an inch, moles cannot creep in, and they are large enough to carry off all the water, after even the heaviest rains.

The expense is, comparatively, nothing, varying from £3 to £5 per acre; and we shall not stop to argue with any one, who doubts for an instant the advantage consequent upon removing all water from a soil not retainable by its own absorbent powers; and we will only repeat one relative fact, viz. that at Lord Hatherton's residence, Teddesley Hay, in Staffordshire, four hundred and sixty-seven acres, formerly letting for an average rental of 12s. per acre, were all drained for an outlay of £3 4s. 7d. per acre, and their rental now averages more than 31s. per acre!

The importance of following the dictate of nature to keep the roots of plants, natives of the torrid and temperate zones, as warm or warmer than the branches, has been too much neglected by the gardener in his forcing department. In the vinery, for example, the stem and roots are too often absurdly exposed to the rigour of winter; whilst the buds are expanding within the glass shelter in a temperature of 60°. A vine so tre like the felled elm, which, allowed to retain it though rootless, puts forth its leaves in the expands its buds, and advances through the firs of growth merely from the sap stored within its st branches. This is no mere suggestion of fan repeated experiments have shown that hot-hous with their roots thus kept torpid by exposure to c not broken, that is, their buds had not burst; other vines, treated in all respects similarly, b their roots kept genially warm, were actually in l

* If the subsoil be clayed, the drains should be only twelve feet apart, and the draining tiles covered with stones.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

CHOICE FRANCISCEA (*Franciscea eximia*).—*G Magazine of Botany*, vol. ii., p. 177.—Stove ever der shrub. Franciscea is a name given by Poh man botanist, as a compliment to the Emperor of Austria, when Bonaparte was on his fatal r Moscow; and, therefore, as Mr. Beaton clearly e the other day, is only a synonym of Plumier's *Br* Plumier wrote his last books on occidental p 1755, after a long course of authorship, and h legitimate author of *Brunsfelsia*, which Pohl un ably turned into Franciscea more than sixty ye wards. We must, therefore, cancel *Franciscea*, a rebuke young authors and gardeners for perpet name without a title. It is true that many of o of reference saddle *Brunsfelsia* on Linnæus; sight which, if true, would place Pohl's Franci more in the back ground. The genus Brunsfe memorates the name of *Otho Brunsfels*, a Ca monk of Mentz. The specific name, *eximia*, mean and well applied is it in this instance, for it cer the choicest yet described of the *Brunsfelsias*. T roots of one of the species in our gardens, *uni* called Manaca in Brazil, where they are extensiv medicinally, for exciting the lymphatic system also the *Vegetal Mercurio* of the Portuguese sett

to a section of the Natural Order of *Figworts* ılariaceæ), *Salpiglossis* and *Browallia* being the alliances. In the Linnæan system it is included 14-*Didynamia* 2-*Angiospermia*.

Brunsfelsia (Franciscea) *eximia* was introduced in m Brazil, its native place, by M. de Jonghe, of . It blooms when very young, and the flowers last ıuary until the close of June. Its *stem* is about two a half high; *leaves* shaped like those of the willow, six inches long, dull green above, paler beneath; vo to four together at the ends of the branches; e-cleft, downy; corolla, with tube slightly curved er than the calyx, spreading into five waved lobes, ish purple, lightest towards their edges.

E-FLOWERED ECHEANDIA (*Echeandia terniflora*). *s Flower Garden*, vol. i., p. 120.—The derivation generic name is said to be unknown, but it was by M. Ortega, and probably means surpassingly l, from the Greek *ek* and *eanon*. Be this as it is a half-hardy bulb, worthy of cultivation as ntal; and also worthy of notice to be held up as warning against the presumption and the mis- needlessly creating new names, thus helping load our vocabularies with synonyms, and ıssing most needlessly the student. Any one ıg for information relative to this plant, must r it as *Anthericum reflexum* in Cavanilles, as *hera Echeandia* in Persoon, and as *Phalangium* in Poiret!

ndia terniflora belongs to the Natural Order of *Lily*- iliaceæ), and to 6-*Hexandria* 1-*Monogynia* of Lin- It was first received in this country by Sir Charles in 1837, from Mr. Rule, then inspector of the noto- ines of Real del Monte, in Mexico. "It flowered in enhouse at Carclew (Sir C. Lemon's residence in ll) in June, 1839, and continued to produce a succes- five or six flowers daily during July and August. It s to produce seeds by which there is every chance of g increased." This announcement in the *Botanical Register* some ten years since does not seem to have been realized; but, at all events, the plant is not often met with, and is propagated by offsets of its thick fleshy roots, which should be taken up in the autumn, and preserved through the winter in sand. Though it bloomed earlier in the Corn- wall greenhouse, yet, as a border flower, its blossoms do not expand until August; they are of a golden yellow, very like those of the St. John's Wort, but they last only one day.

SCARLET-FLOWERED COLQUHOUN (*Colquhounia coccinea*). *Botanical Magazine*, t. 4514.—This genus, as stated by Mr. Beaton at page 85, was named after Mr. Colqu- houn, and belongs to the Natural Order of *Lipworts* (Labiatæ).

C. coccinea was introduced from Nepal about the year 1840, and flowered towards autumn of the present year in the Kew Botanic Garden. It is a half-hardy shrub, tall, and somewhat climbing; *branches* slightly four-sided; *leaves* opposite each other in pairs, and from the angle between them and the branch spring the partially stem-encircling *flowers*, upper lip, back of the tube, and margin of lower lip of these red, and other portions yellow.

DARK-PETALLED FUCHSIA (*Fuchsia nigricans*).—*Flore des Serres*, t. 481.—This is a native of the damp shady mountain ravines of Central America, at elevations of between 6000 and 8000 feet, whence, in 1847, it was introduced in Belgium by M. Linden. A greenhouse shrub, flowering from May to November. Nearly allied to *F. triphylla*.

Leaves egg-shaped, tapering to a point, usually in threes round the branch, but sometimes in pairs opposite each other; *flowers* hanging down, and springing from the angle between the leaf and the branch near its end; calyx rosy, downy inside; petals dark violet, pointed, and flat.

The genus *Fuchsia* was named after *Leonard Fuchs*, a German botanist; and belongs to the Natural Order *Onagrads* (Onagraceæ), and to 8-*Octandria* 1-*Monogynia* of Linnæus.

B. J.

THE FRUIT-GARDEN.

PINE CULTURE.—Although we have but recently offered advice as to the winter management of the pine- apple, principally in dung pits, yet there appears a necessity for taking up the subject again in a more general form, inasmuch as we find that one portion of the readers of THE COTTAGE GARDENER, and by no means an immaterial portion, desire further information. We must, therefore, crave the patience of another and important section of our readers—those who either do not cultivate the pine, or who already possess the kind of information it becomes our duty to endeavour to impart.

In order to be fully understood by the class of readers desirous of instructions in detail, we feel compelled to take up the subject almost in a calendarial form, and to advert to the application of the great elements of heat, moisture and air, in their relation to the probable amount of light in each month. A consideration of the conflicting opinions—such as tank *versus* fermenting materials, or that of pots or no pots, we shall feel bound, in the main, to waive; these are, in the present state of matters, somewhat speculative. Not so, how- ever, the just apportionment of heat, moisture, and air, in their relation to light; whatever mode of root culture be employed these remain unchanged, and, as it were, unchangeable.

To put a case, and gain a starting point, we will suppose an amateur just commencing pine growing, previously knowing nothing about details of culture, merely having heard that the pine requires a great heat to bring it to perfection, and also that a great amount of atmospheric moisture is requisite. In addition,

suppose that he has just built a new house adapted to their culture, possessing ample means for producing artificial warmth and moisture, with a very light roof; and that an extra provision is made, independent of atmospheric heat, for insuring a bottom warmth of 80° at any season, if considered necessary. Let his period of commencing pine culture be the second week in February; and we will suppose that he has purchased a lot of fine strong young successions in seven inch pots, and that, having been well wintered, the pots are full of roots.

Now, to shape our remarks for tank-heated chambers would, we fear, be to write for the minority; as, therefore, the management of fermenting materials is the most difficult, we will suppose that for the first year or so the pit inside is worked by such, leaving the worthy proprietor an easy chance of introducing tank heat subsequently if he chooses.

The second week in February is about the period with most good cultivators to commence a course of culture, rising progressively with the rising spring, and only declining in the ensuing autumn, through a partial deprivation of light; for the pine does not appear to be intended by nature for a state of decided rest—such is known in practice to be inimical to the production of fine fruit, although it has a tendency to cause plants to show fruit; such, however, in the main are but abortive.

Well, before these pines arrive he must make up what is termed a bottom heat; and the pit being some five or six feet in depth, he cannot do better than fill it three parts full of tree leaves, if he can procure them. If not, tan alone must be used; but as five feet of tan will be by far too powerful to admit of their being even partially plunged, what, then, is to be done?

In the case of old established pits, there is generally a lot of *old tan*, which when riddled, and the mere fine parts rejected, serves admirably in mixing to qualify and moderate the severe heat arising from a great body of new tan. We think that thirty inches of new tan is as much as ought to be placed in a body, if the plants are to be partially plunged; and, therefore, for the first year the excavation in the interior of the pit need be no deeper. The tan then is in, and now the plants must be repotted. Much fuss has been made about soils, composts, &c.; but we are persuaded that any turfy soil, even from a road-side, will grow them in high perfection, provided it is well chopped to pieces *when dry*, but by no means riddled. Nevertheless, it is very good practice to have a richer and mellower compost in a more decomposed state on the potting bench, the use of which will be shortly described. Few things will be better for this purpose than the surface of an old cucumber bed—chopping, when dry, dung, rotten leaves, and loam altogether, but most of the loam, and then passing it through a very coarse riddle, afterwards adding one-sixth of charred sticks, or rubbish, such as will pass readily through a riddle of an inch mesh.

Some practise shifting only a single size larger as to the pots; we would at once place them in pots which would require but one more shift: the size of the pot for the final shift will determine this; and pots of about thirteen inches diameter will be sufficiently large for any beginner to fruit in.

Let us now suppose a potting bench, with the chopped turf on the right hand, the mixed compost on the left, and plenty of drainage materials close at hand. First, place three or four large crocks in such a way, as that at least three bold apertures be formed, both for the escape of water and the admission of gaseous matter from below. Over this strew broken crocks and charcoal lumps, large as horsebeans, until the large crocks at the bottom are just concealed. Then strew a layer of the turfy lumps out of which the loose soil has been ejected by shaking in a riddle. This done, the ball may at once be inserted, first suffering such crocks as are dislodge themselves from the old ball. Next, another layer of the turfy lumps all round the on these strew a couple of inches of the mixed in a mellow state—this being finer will fall amongst the interstices of the turfy material; use a blunt stick, and give the whole a slight all round the ball, in order that there may be no or settling. Next, another layer of the turfy strewing a little of the compost over them; ag with the stick; and now place a final coatin compost, nearly two inches in depth, all over, a with the rim of the pot. The work is now do we strongly advise that no tapping or thump bottom of the pot on the bench be allowed—t ming, if the soil be tolerably dry, is a much practice. One remark may here be introduced unfrequently happens that the balls of the pines be shifted are dry, in which case it is the best pr water them, at least three days before they are to be with tepid manure water, in order to allow the to equalise itself, and the surplus to pass away there will be no occasion for any root wate nearly a month after shifting; the roots will be increase much more rapidly in new soil rather with watering. The pit having been duly prepa plants may be plunged immediately they are but let them by no means be more than half the in the tan. If any disrooting has become reall sary, and the sun shines bright, a little canvass will be a benefit for a couple of hours each da however, to obstruct light, but rather to prevent rapid dispersion of atmospheric moisture.

And now for temperature, which we will give rest of our advice in a monthly digest.

Table of Temperature, Day and Night, for th Year, as to Artificial Heat only.

	Day.	Night.	Rise in
January.....	64 deg.	60 deg.	6
February	66 „	60 „	6
March	70 „	62 „	6
April	74 „	64 „	8
May	76 „	65 „	10
June	78 „	66 „	10
July	80 „	68 „	10
August	80 „	68 „	10
September.....	76 „	63 „	10
October	73 „	62 „	8
November.....	70 „	62 „	8
December	64 „	60 „	6

These temperatures will be found perhaps as n point as can be devised; nevertheless, it may observed, that tables of this kind must not be to guide the thermometer entirely. A good cu will take notice of the condition of his plants, an his course accordingly. If they appear "drav should at once lower his night heat, as also that days.

And now with regard to bottom heat. We dc that by adding 6° to every one of the artific temperatures, as here recorded, we shall be as co by any tedious detail. Thus the highest month July and August—would give a bottom heat which, in our opinion, ought never to be exceed any pretext, in pine culture. And the lowest mo December and January—will give 70°, whic perhaps, be quite as healthful to the plants as tho bottom heats sometimes recommended.

Monthly Culture.—The plants being all plun the new pit, trial sticks must be put in, and a heat thermometer by all means employed. Now, ought to be well understood, that the bottom hea given is meant to apply to the heat at the bottom

pot. Whilst practitioners are driven to capricious fermenting materials as a source of bottom heat, an excess of heat will sometimes become necessary *inside* the *bed*, in order to provide somewhat against sudden declines. Let, then, the operator secure the bottom heat as per table at the bottom of the pot, and all will be right.

If the heat rises above the desired point, let water be instantly employed as a cooler between the pots; and if this does not immediately check it sufficiently, let the pots forthwith be rocked to and fro in the bed, until a fair cavity is obtained between the tan and the pot side; and when the heat has declined to the desired pitch the cavity may be filled up again.

And now, all things being in working order, let atmospheric moisture be liberally employed, especially from three o'clock in the afternoon until eight or nine the next morning. A slight syringing may be applied on every afternoon about closing time, taking care that at this time of the year it is dispersed on the following morning by a liberal heat and a free ventilation. Air must be given daily, if only for an hour; during all moderate weather a little may be given at 8 A.M.: increased, if necessary, about 11 A.M.; and taken entirely away about 3 P.M.

MARCH.—We have been rather prolix in our February advice, inasmuch as our new beginner would want, like a new workman, a stock of tools to commence with. This, however, will save repetition; for the same principles will have to be put in requisition through the whole culture—receiving merely an increased or diminished application, according to the amount of light which, as before observed, rules the whole of the proceedings at all seasons.

The sun will now be gaining much power, and the amount of perspiration from the foliage will be much increased; let, therefore, a corresponding increase take place in the amount of atmospheric moisture. Shading may be employed for a couple of hours or so in the middle of very sunny days with some benefit; for we would not have the perspiratory powers of the plants taxed too heavily until they have a pot full of roots, which they will not possess until May. Syringing the surface of the tan is an excellent thing; but this and some other practices we will treat of when summing up in the sequel. If the wind is very cutting, be very cautious in the admission of air; the front sashes may be kept closed, and, if sunny, the shade applied, merely letting a little of the surplus heat escape at back.

R. ERRINGTON.

(To be continued.)

THE FLOWER-GARDEN.

PRUNING.—Out of the many proofs—revealed to us through our correspondents—of the interest we have created about gardening, the anxious inquiries about the proper way to prune the different hardy trees, shrubs, and climbers are the most remarkable. Almost every post brings under our notice questions in relation to this part of practical gardening; and as winter pruning should now be done out of hand, if only to get places a little tidy, and swept up after all the leaves are down, I have postponed, for this time, my intention of furnishing, weekly, a few selected names of trees and bushes that would show the different methods of pruning, as well as be of interest to new beginners who want to plant, but hardly know what sorts to look out for in the nurseries; and I shall lump together a good many of the more established sorts to-day, and say how they ought to be pruned to make the best of them. Many kinds may not occur to me as I go along, and, in such case, I wish to invite all young beginners to send for advice about such as they do not rightly understand the pruning of, just as if I had not written this letter. Our weekly instructions—in every department—I dare say, often come within arm's length of the very thing many of our readers want to know, and yet not be up to the full mark; but when we really know or understand what is most needed, we have no difficulty of coming to the point at once—as far as the subject is known in our day. Fortunately for me, nothing in the way of gardening is better understood by all of us than pruning, and yet few things in our line are more often mismanaged by the thoughtless. Tell a second-rate gardener how a new plant has flowered or produced its seeds, and it does not matter a straw whether he had ever seen the plant or not, he can give a very near guess how it ought to be pruned, either in winter or in summer; but summer pruning with all those who understand the principle of pruning, is by far the best; and when performed with judgment, it leaves very little to do in winter for two-thirds of all flower-garden plants.

Almost every body knows that a grape vine flowers on young wood made the same season, or, as gardeners say, on the current year's wood, so that every young shoot on a vine, the growth of this season, might now be all cut out, except one eye or bud at the bottom, and yet the vine be as full of wood and flowers next June as it was this season. Of course, I only mean this to explain what follows. Now, if a vine was only half way up the wall it had to cover, it would be a very foolish thing indeed to cut back all the young shoots to one eye. The top shoots ought to be left to a certain length every pruning time, until the wall was covered. And here comes the first puzzle—"a certain length." What is "a certain length"—a foot, a yard, or what? This is just such another case as planting a flower-bed on paper. Some would do the thing with a few strokes of the pen, and others could tell you the very bud at which you ought to cut—that is on paper; but if truth must come out, which, though the best, is not always the most palatable thing in the world, there is not a man living, nor a woman either, who could tell the length of "a certain length" in pruning. The very best gardener in this country, after pruning one half of a large vine, could not tell to a foot, perhaps, at what lengths he ought to prune the other half—if one was to take him gently by the botton-hole and turn his face from the tree, and then ask him the question as to the lengths. A scientific pruner at his work may be likened to a good grammarian reading a book: he can give you the school rule for every sentence, and he can see, too, how easy it is to violate all the rules of the grammarians in one page, and yet be understood, and pleased, as well as instructed, with the subject. Just so with the said pruner;—he, too, can give his rules for every cut he makes, and also see the rules of pruning set at defiance by another, who may still obtain the crop he wants; but here the comparison drops: he of the book may write bad grammar to the end of the chapter; the bad pruner can only escape a season or two.

We have established a law amongst ourselves, which holds good in ninety-nine cases out of a hundred, namely:—Suppose a vine, or a *Glycine sinensis*, or a *honeysuckle*, or a *Clematis*, or a *passion-flower*, or a *jasmine*—for all of them flower on the current growth—has made a top or side shoot eighteen feet long, and that the space intended for it to cover is not filled, cut away two-thirds of the growth, that is, dividing eighteen feet into three parts, each part would be six feet; then twelve out of the eighteen feet is to be cut away, and one-third is to be left. This rule is the same, whatever the length may be: eighteen inches, cut off a foot; a foot, cut away eight inches. All this cutting refers only to the end shoots; the little side shoots from the older branches must be cut very differently; and in those plants I named, and all others which bloom on the current year's wood,

the side shoots ought to be cut to two or three eyes, or pair of eyes, according to their strength, the strongest to have three eyes, or three pairs of eyes, where two opposite eyes come at the same joint, as in the honeysuckle; and the weakest shoots may be left with a single eye only, or one pair of eyes.

When a climber is trained fan-fashion, or like the spokes of a wheel, as the shoots get higher they get wider apart, and when two of them stand so far apart up a good way, one of the side shoots may be trained in between them, and the rule with this go-between shoot is the same as with a leading shoot—one-third of its length ought to be left. In other cases, where there is not room to train in one of these side shoots to form another branch, a short piece of young wood from six inches to a couple of feet may be nailed in a temporary way; and when it has flowered it should be cut down close to the last eye, and another one laid in the same place for another season; and in the summer, when a more than ordinary strong shoot grows from the sides, it ought to be stopped when it is six inches long, else it would assume the habit of a leading shoot, and so derange the training. Another advantage of stopping such shoots is, that they make some more growth, and flower later in the season than those that needed not to be stopped. Now, every plant which flowers on the current year's growth, and is to be pruned for the sake of the flowers only, should be done exactly after this manner until such time as the allotted space for it is filled up; and when that is effected the only difference is, that the topmost shoots, or the end of the main branches, must be cut in as short as the side inferior growths. When any of this class is newly planted, and especially if it be half-hardy, as the passion-flower, it is not a good plan to leave much wood uncut during the first two or three years. There is nothing to be gained by leaving long pieces at the winter pruning, neither will there be less bloom the following season. Suppose a young passion-flower, or *Mandevilla*, has reached the top of a ten or twelve feet wall, the first or second season you gain nothing in the long run by cutting either of them down to five or six feet; they answer much better if cut to within a few inches of the ground, three or four shoots to one will rise next season, and each of them will be much stronger than your six feet length if left; besides the facility of guarding them against frost. The *Glycine* in particular, as it does not bloom for the first three or four years, if planted very young, should be cut down the three first winters to the ground; as if it flowered on the wood made the same season, which it does not. We have all of us heard of *Glycines* standing for years without blooming, or even making much young wood, and the reason for its standing still is, that at first going off pieces of unripened wood were left so long, with a view to get it on as fast as possible, that they had not sufficient energy to start afresh next year, and the summer's sun baked the dwindling branches into a hide-bound monument of bad management. I think I said last year, the best way to do with a *Glycine* in this plight would be to lay the whole shoot down horizontally, so as to cause a fresh bud to start from the bottom; and that s a good make shift; but the better plan is not to risk ne necessity for doctoring at all, but to cut the fellow own until the roots were in a condition to send up a hoot of such strength as would ripen the lower three or our feet of it before the end of August. A good practical runer with his eyes bandaged could tell to an inch ow low a shoot of it should be cut after attaining this ength: he would be guided by the hardness of the d; and if there should be an error, it had better be in nortness of the piece left, than that some inches of ugy young wood should remain.

he next pruning in order, after pruning annual oots, is that of two-yearlings—such as Mr. Errington's peach-trees. They grow one year and flower the next, as gardeners say; not meaning, of course, that they flower but once in two years. The wood they made in 1850, will produce flowers in 1851, but never afterwards from the same parts. But lest I be root-pruned myself, I shall no more refer to them, but take to another old-fashioned family, the most ill-used of all the plants I know in the way of pruning, I mean the *Barberries*, which used to be hard dealt with for bringing the mildew on the farmers' corn, before they found out the use and abuse of draining their land. Who would prune a *barberry*? But if the barberries, and there are many of them, were properly attended to as to pruning, we have very few shrubs that would look much better in the autumn, when loaded with clusters of bright red, black, or blue berries. The *Asiatic barberry*, which is all but evergreen, forms one of the most handsome little trees I know for a corner of the lawn, when confined to a single stem six or seven feet high, and then a spreading head of well balanced branches loaded with oval purple fruit, that would hang on all the winter, were it not that the birds are so fond of them. The dwarf evergreen ones with holly-like leaves (which used to go by the name of Mahonias), do not require much pruning, and, therefore, will not be referred to as examples for pruning for two-year-old shoots. Therefore, the oldest of all, the *garden barberry*, will answer all the purposes of this paper.

A barberry bush is a young plant at one hundred years old; and no one has ever heard of its dying of sheer old age. If properly managed in deep rich loamy soil on a rock or chalk bottom, it would grow as big as any of the apple-trees in Herefordshire; not so thick in the stem, it is true, but fully as high in the head. It is on record, that in thirty years it made as many feet, upwards; and that is quite enough for any apple-tree. When it gets very old indeed, or very badly managed, as often happens, the pollen is so dry and scanty that it does not do its duty, and always when that happens there can be no seeds; but the berries come the same; and when wiseacres meet with a bush in this condition, forthwith it is set down in a book as a new kind—*asperma*, of course, from *a*, not, and *sperma*, a seed; and who can doubt it! but set a good pruner over it, and the next edition will have it—*polysperma* instead; from *polys*, many, and *sperma*, a seed;—and from these many seeds, if people took the trouble to sow them, many more new kinds would come up—some with white berries, some with yellow, some with purple, blue, or black—and some of all colours perhaps: and why not some as sweet as a strawberry? Why, indeed, but that we do not know how to come at that yet. I am glad, however, to see that what I said about our backwardness in getting better fruits than our neighbours, the other day, has attracted the notice of a contemporary, who made a capital leading article on the subject; although a brother chip was badly, or in bad taste, snubbed for not quoting a Frenchman in full, about Virginian apples coming sour at first from seeds, as Mr. Knight's apples and cherries used to do at Downton Castle, and which well-nigh caused us the loss of the Black Eagle cherry altogether. But let us put our shoulders together and see if we cannot get a better barberry than the Emperor of Austria, who has the best of them growing naturally in his own dominions—if, perchance, he has any dominions by this time to get barberries from. This *Austrian barberry* is, after all, really a good thing; and Loudon says it is to the common barberry what the apple is to the crab. But it does not come true from seeds, it must be had from layers, and is the best sort to try experiments with for a venture at an improvement in barberries. Who would mat up currants and gooseberries, if barberries and fuchsia berries could be had for table down to Christmas?

In anticipation of such things, let us learn how to

prune better such kinds as we have, if only for example to guide us in managing plants having the same mode of showing their flowers. A flowering barberry, if looked to now, will be seen with the remains of the stalks on which the fruit was borne this autumn,—not unlike a currant-bush after the tom-tits have stripped the berries. All the shoots with these remains were grown in 1849, and they will never bloom again; neither will they grow away from the points next summer, if left, as peach shoots of the same age would do, but bend over among the rest of the confused branches in the head of a mismanaged plant, and two, or three, or more young shoots from the lower eyes of these bearing shoots will be seen to shoot upwards, to flower next year. They, also, in their turn, will bend over in the same manner, and produce another succession from their lowest parts: thus, without pruning, a barberry-bush gets so thick in the head from these bearing shoots that some of them must get smothered, and therefore so many of them die every year, although the bush is known to be as long-lived as the oak. Now, without going farther, an ordinary pruner would see exactly how this bush ought to be pruned, although he had never seen it nor heard of it before. The first thing to be done, is to get rid of every one of those arched shoots which have carried fruit this season: if you only see but the remains of one cluster on a branch, take my word for it, that branch will never show another cluster of fruit; and so out with it at once, and cut as low as where a young branch of this season's growth has started from. And on the supposition that no such branch did really proceed, and your cluster-bearing branch is free of other shoots from end to end, you must cut it back to the very last bud of it—if you only leave an inch of stump to tell the tale of its being there. That over, the whole head of the bush will now be made up of very old looking and, may be, very crooked branches, bearing a host of very young ones, probably a great deal too thickly—or crowded on each other, and one false cut with any of them is sure to make the crowd more crowded next season. If you let the knife touch one of these young shoots of this season's growth, the chances are, that it will not bear a single flower next season: they are so excitable that all the buds would grow into shoots instead of only fruit clusters. Therefore, every young shoot that is necessary to form a well balanced head must be left at full length, and all those that crowd or cross others must be cut as close to the old branch as you can. The leaves being not very big, you need not make the young shoots very thin; if any two of them stand six inches apart, about the middle, it will be enough, now that all the useless branches are got rid of; and, on the whole, I would have the head of young shoots rather crowded for the first two years after so much cutting, to see what effect it would have on the whole plant, as, no doubt, the roots being as strong as ever, they will cause young growths to issue from some of the bare branches below, and too many bottom shoots will become as difficult to deal with as too many in the head; but such of them as come from the outside of the bush all round will be very useful in a year or two, as furnishing bearing wood from the bottom upwards, like a well managed peach-tree. But if you are in earnest, let no more suckers come from the roots, or from any parts within a foot of the ground; as soon as you see any of them rub them off; and if ground suckers come up you must clear away the soil down to the roots *in May*, and get at the very places where they issue from the roots, and cut them clean off with a chisel, without wounding or *mauling* the roots in the least, as that would be sure to increase rather than diminish their natural disposition to sucker.

There is another, and a very scientific process which might be resorted to at the winter pruning with great advantage. It is disbudding; and I shall take good care the real meaning of the word is properly explained in our beautiful new Dictionary, with which I am highly delighted, and which I hope will soon be in the hands of every man, woman, and child who cares a snuff about gardening; for, apart from all considerations of fame or profit, I am quite convinced already, that since the day Philip Miller sent out his Gardening Dictionary, that we have not had so useful, or so cheap a book. Errors there will be, no doubt,—and where is there a compiled work without them? for I have discovered a few in the best work of that class in the English language, after going through the ablest hands in Europe in successive editions for more than fifteen years. Therefore, it would be the very height of folly in us to expect to escape the common lot; and we shall take it in good part from cynic or critic who will point out any errors to us, in whatever spirit they may be offered: our aim is to render the work as useful as the present state of our accumulated knowledge can make it, and no more or less.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

THE ORANGE TRIBE.—Following up the remarks of last week, I am now to advert to their treatment when kept altogether, or almost constantly under glass. First,

When planted out in Conservatories.—Here the centre plants should be standards of large size; those nearer the paths may be reared at home by any of the methods hereafter to be mentioned. Few things are more imposing than a house of oranges or camellias so planted, when they are in robust health. To realize the greatest amount of pleasure, however, unity of expression must not be marred by studding among these turned-out plants lilliputian specimens in pots and boxes. When it is not intended, therefore, to plant at least one division of the centre of a conservatory either with oranges or something else of a kindred nature, the attempt should not be made at all. Hence I previously advised, that in limited space the planting out should chiefly be confined to the covering of the back wall, and creepers for the rafters. Even when the plants are large it is better to have them all in the centre of the house, in pots or boxes, in preference to having some one way and some another. As a consolation for those who cannot well make an orange grove at their library door, it is well to know that no plants flourish better in large pots and tubs. For the sake of those, however, who wish to plant, I will give an outline of the proceeding. The soil should be well drained, with a firm bottom sloping to the drain; and if six inches or a foot of open rubble over the bottom all the better. Few plants suffer sooner from saturated soil or from *drought*. I have seen some plants sickly just because, though the surface soil was moist for six inches, the remainder was thoroughly dry. Oranges, or any other plants, ought never to be watered, unless so that they get enough to reach every fibre.

The soil in which they are planted should be open and rich, and from 18 to 24 inches in depth,—the following will answer admirably:—One-third good fibry loam, obtained little more than one inch thick from the top of an old pasture, built into stacks a yard in width—the air allowed to circulate through it, but no rain to fall upon it; to stand at least a twelve-month, and then chopped down with a spade, but into no *very small* pieces, when it will be found tough, fibry, and as sweet as a nut;—one-third of the following as a whole, the relative proportions being regulated by circumstances: sandy road-drift, broken freestone, charcoal, lime and brick rubbish from which the mere dusty matter has been sifted, and one-third altogether of

manuring substances, consisting of leaf mould, cow-dung, sheep-dung, deer-dung, all from one to two years old, lumpy and hard from having been dried in the shade, with a portion of broken bones. These should be mixed together and used directly. I have no notion of making many composts long before using them, especially if they are to remain in the open air, exposed to rains, &c. The manure, when thus dried under cover, is very different from the unctuous mass it becomes when exposed for a year or two to the open weather. Some will smile at mentioning so many things for a simple orange plant; but it will be seen that many of them may be used as substitutes for each other. For instance, I would be satisfied with loam, road-drift, and cow-dung, if the other things were difficult of acquisition. Much, however, as the present generation may smile at the folly of the old gardening florists, who would almost *weigh* some twenty ingredients for a single tribe of plants, it cannot be denied that *most plants under artificial culture succeed best in a mixed compost.*

All being ready, the plants may be turned out of their pots or boxes, part of the old soil removed, the roots traced out, and trained in the new soil, well wetted with water at 70° or 80°, *but only as far as the roots go*—a few pins may be put in to mark the extent, as it is better not to soak the rest of the soil before the roots begin to enter—performing the operation in April, just as fresh growth is commencing. The house should be kept close for a short time afterwards and syringings given two or three times a day, especially if sunny. If cold weather should prevent the temperature rising to 60°, during the day a little heat may be given. When growth in the branches and roots has fairly commenced, more air may be given; and by the end of May the syringings may chiefly be given in an evening, until the middle of September. When the trees are established, the temperature may range in winter from 40° to 48°, with 5° or 10° more for sunshine; from February to May it may gradually increase to 55° at night, 60° by day, and 10° for sunshine. From the end of June, for the best part of three months, 10° higher may easily be maintained by keeping the house closer—all that is necessary being frequent slight sprinklings with the syringe, and good soakings of manure water when requisite. In such a temperature—from 60° to 65° at night, and from 70° to 80° during the day—the orange will ripen in perfection, and there will generally be fruit and flowers in different stages at the same time. In very bright weather it will be necessary to draw a net over the glass, or otherwise darken it, as the foliage of the orange, until well used to it, does not stand the full sun well.

I have been told of oranges thriving when trained several feet from the glass, on a trellis similar to peaches; but I have never seen them so managed, though I have no doubt they would thus make a splendid appearance.

In planting them against the back walls of conservatories and greenhouses, the same plan may be adopted; but as only one side of the plants will be exposed to the light, the plants must either be placed thinly, or if thickly to produce an effect quicker, then the compost should be equally open and rough, but not so *rich*. If the roots work freely, it is an easy matter to supply luxuriance by top-dressing and manure water; in the case of such plants, where fruit as well as flowers are expected, it will be necessary to have the centre of the house cleared of very tall plants during the summer, that the sun may easily reach them.

Trained against the back of forcing houses—such as vineries, &c.—the orange tribe also succeeds well. Here they have good light in spring where forcing does not commence early; the high temperature and shade in summer just suits them; and then they get light in autumn again to solidify their tissues. Figs, it is true, will often do well in such circumstances; but then, if we take into consideration the beauty and the fragrance of the orange, there is no comparison of appearance between it and the fig—the one being a beautiful evergreen, whilst the other is a rough-looking deciduous plant. In order to guard against disappointment, it is requisite to state, that if there is a *stage* at all in such a house it must be a low one, and the plants set on it also be low, or the orange plants will be too much shaded against the back wall. In such positions the plants should be a good size before planting, and the soil open and rich. More than a dozen of years ago I had the pleasure of seeing splendid fruit of all the varieties of the orange tribe against the back walls of the houses at Woodhall, near Glasgow.

With common greenhouse treatment, all the year round, orange plants will succeed much better than when taken out of doors in summer, especially north of London. If the usual tenants of such houses are withdrawn, and their places supplied with tender annuals, &c., the oranges will just be in their element. In such positions they are generally grown in pots. A few large ones may be in tubs or boxes. It matters little what may be the material if kept in the house. Slate answers well, and is neat, but I do not consider it equal to wood when placed out of doors, as the roots are liable to be very much heated during the day, and as rapidly cooled at night. Wood boxes or tubs painted stone colour, and sanded, I consider preferable. For all large specimens, the vessels containing them should be so made as to be easily taken to pieces, and put together without much trouble, so that the roots may be easily examined; old soil picked away, and fresh added; and even the operation of moving into fresh boxes accomplished without greatly disturbing the plants. To be grown in the greenhouse in large pots, &c., in addition to those mentioned, I would recommend the *Totness*, it being a fine large-looking orange, and a free bearer. I know very little of its history.

Shifting, or Repotting.—The first thing to be thought of here, is ample drainage. The second is soil of a very open texture, and, therefore, where such loam as I have spoken of cannot be procured, a portion of *fibry peat* should be added. A little soil of a finer quality may be spread over the surface, which will look neater, and prevent a too free penetration of air. The main part of the soil, however, should be coarse; riddling it if you choose, but only that you may exclude all the finer matter. Attention to this will prevent disappointment, and save labour afterwards; as if well done, unless in very small plants, several years may elapse before the oranges again want your attention—so far as potting is concerned. When grown in this stilted manner in pots, &c., they should rather be *underpotted*; oranges in such circumstances, drainage being secured, and the soil rough and open, preferring rich top-dressings, and manure-waterings, when growing freely, to very extended root room. The top-dressing may consist of the manures specified, but not in a fresh state; and they, and also guano and superphospate of lime, may be used in weak solutions for watering. The last may also be applied as a slight top-dressing on the surface. If, in large boxes, a good soaking of water is given late in autumn, little more will be wanted until fresh growth commences in the spring.

Pruning.—The flowers and fruit are generally produced at the termination of the short shoots of the current year's growth, and upon small side shoots breaking out from those that are longer and stronger, but well ripened. This must be kept in view, when the greatest quantity of flowers and fruit in a limited space is desired; and must be more attended to when the plants are grown against a trellis, than when shaped into symmetrical heads as standards; in which case the fruit and flowers would naturally be studded all round the outside of the

plant, and the chief point of pruning here would consist in the removing of the older branches. Pruning may be performed in autumn or spring; strong watery shoots should be stopped whenever they appear, unless a leader for a particular purpose is wanted.

Thinning Flowers and Fruit.—The former may be done for bouquets, for orange-water, and to cause the fruit to set better. To have the latter fine, only one fruit should remain from a bunch of flowers.

Propagation: by Seed.—For raising new varieties, and for stocks for grafting; for the latter purpose, citron, lemon, and Seville oranges are to be preferred; but any will do. If the fruit is decaying all the better, because the seed will be plumper and riper. Sow any time after Christmas in a hotbed. Pot off singly when several inches in length, and keep reshifting during the summer, and growing rapidly in a high moist temperature, if tall stocks are the object; allow them to rest during the winter; start them again the following spring in a hotbed, and then bud or graft by almost any method. Where the stocks are too tall to be placed in a hotbed, they should be set in the shady part of a house, and the scion after being secured, covered for a time with thin glazed gauze or tissue paper. Where nice little bushy flowering plants are wanted, the seeds may be sown any time in a hotbed in spring, potted off, &c., as above, and grafted about midsummer. As the stock is small, side or cleft grafting are here the best. By the first—it is merely necessary to cut a piece off the side of the scion, and an equal piece off the side of the stock, bind them together, and clay over, allowing part of the head of the stock to remain until the scion has fairly taken. By the second—cut the stock down to within an inch or two of the soil; split it in the middle, prepare the scion like a wedge; insert it so that at least on one side the inner bark of the stock joins the inner bark of the scion. Or, if the bark rises freely, a longitudinal cut may be made in the side of the stock thus cut down, as if for a bud, the scion being made thin and inserted accordingly. Tying in all cases must be carefully attended to, and the air excluded by clay or grafting wax, and the plants must be kept close until the union is fairly effected. If placed under a hand-light in the interior of the hotbed, this will be the sooner accomplished. They must then be hardened by degrees.

By Cuttings.—This is the best plan of all where neat small flowering plants are wanted, and may be prosecuted at any time, unless when the plants are growing freely. Early autumn and early spring are, therefore, the best times. Young well-ripened shoots are the best, but such shoots also do well with a portion of the older wood attached, though the latter require a little more time. Cut them over to a joint, insert in pots filled with sandy loam and pure sand at the top—the base of the cutting resting on the draining crocks; water, allow the foliage to get dry, keep under a hand light in one of the houses for two or three weeks, and then plunge the pots in a sweet bottom heat. According to circumstances, it will require from six to twelve weeks before the plants are fit to be potted.

Insects.—The orange tribe has its enemies, the most prominent of which are the *aphis*, when the shoots are young; and the *red spider* and *brown scale* (Coccus). When in winter and spring the syringe can be less freely used the first is easily set adrift by fumigating with tobacco; the second with sulphur vapour, placing it on hot-water pipes, and syringings with clear soot water. The latter operations are destructive to the third, but a few will generally escape, and give employment in winter by hunting for and dislodging them,—washing the plants with a solution composed of an ounce of soft soap and an ounce of flowers of sulphur to two quarts of water, setting the plants in a shady place, and syringing them lustily with clean water two or three days afterwards.

R. FISH.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

BIGNONIA: a genus of plants, the type of the Natural Order of *Bignoniads* (Bignoniaceæ). This natural order consists chiefly of fine ornamental creepers, mostly from the warmest parts of the world, very few being found in more temperate regions. They are remarkable for broad pinnated leaves and handsome trumpet-shaped flowers, rendering them interesting objects to cultivators. We propose on this occasion to select a few of the finest species that are desirable to cultivate—confining, of course, our remarks to such as require the heat of the stove.

BIGNONIA CHAMBERLAYNII (Chamberlayne's); from Brazil.—A lofty climber with yellow flowers, suitable to cover the rafters of a large conservatory. 3s. 6d.

B. CHERERE (Cheréré, native name); red and green; Guiana.—A beautiful moderate-growing creeper, very full of leaves, which appear ternate—that is, in threes, with a tendril on the odd one. The flowers are very pretty. 3s. 6d.

B. VENUSTA (Lovely B.); S. America.—A splendid creeper, with large bunches of bright orange flowers. Very lately we had the pleasure of seeing a very fine specimen of it in the Royal Gardens at Frogmore. There it is planted in a narrow border at the back of the stove, and is trained irregularly over the wall, which it nearly covers. In some parts it has reached the top of the house, and is trained down the rafter a considerable way. There were scores of bunches of flowers upon it, and hundreds of buds yet to expand. This and other examples teach, that in order to have this and other free-growing creepers in the greatest perfection it is necessary to allow them plenty of room to extend their branches and their roots. No pot culture could possibly bring them into such a state of beauty as this plant exhibited.

There are many other species of Bignonia that would, no doubt, by the same mode of culture exhibit their fine flowers to as great perfection; but they would require a large stove conservatory like those at Chatsworth, or the Royal Gardens at Kew. Should the "powers that be" think fit to form "the chrystal palace" of Mr. Paxton, in Hyde Park (after the Exhibition of the Industry of all Nations is over) into a winter garden for the recreation and instruction of the inhabitants of our great metropolis—"a consummation devoutly to be wished,"—there would then be an opportunity of cultivating these magnificent creepers to the greatest perfection in that lofty building. The bananas and palms of India might be grown to something like the grandeur they attain in their native climes, whilst the creepers of such countries would hang down in graceful festoons, and delight the senses of the beholder without the serious drawbacks upon the enjoyment of their beauties to which he is subject when viewing them in their wild luxuriance in their native wilds. We think this most desirable; and we hope to see the day when every one will have a free opportunity of seeing the plants of foreign climes growing in such structures as the chrystal palace.

Culture.—The best situation for the growth of Bignonias, we have said, is to plant them in a border in the stove. They may either be trained to cover the back wall, as at Frogmore, or be planted in a border in front, and trained up the rafters in a similar way that the vine is usually cultivated. In summer, allow all the shoots to grow, excepting very weak ones, which are not likely to flower. The strong shoots should be trained so as to have as much light as possible without entirely shutting it out from the plants below.

Soil.—The borders should be well drained; and if so

narrow as 1 foot, it ought to be at least 1½ foot deep. It should be formed with—loam, two parts; peat, two parts; leaf mould, one part; with a due proportion of sand. The loam and peat should be used in a rough state, unsifted, as this will keep the border open for some years.

Propagation.—These plants seldom produce seed, and therefore must be propagated by cuttings. The best time is early spring. The best cuttings are the young tops of the shoots made the same season. Three joints are sufficient to make a cutting, if short-jointed; if long-jointed, two are sufficient. Place the cuttings in sand, under bell-glasses, either plunged in a bark bed or set upon a heated surface of sand over a tank of hot water. As these cuttings are young and tender, they are apt to damp off—hence it is necessary, for the first week or two, to wipe the moisture from the glasses every morning, and by this means preventing the ill effects of damp confined air. If well managed, they will be rooted in two months, and should then have the glasses left off every night for a week; then to be potted off into small pots in the compost described above, using the precaution of putting it through a coarse sieve, to take out the stones and rough pieces of turf. Place the plants, after potting, under hand-glasses for a short time, till they are able to bear full exposure to the light. In a year's time they will be fit to plant in the borders.

WINTER-BLOOMING STOVE PLANTS.—In all places where a collection of stove plants are cultivated, it is desirable to know what plants may be expected to bloom at particular seasons, especially in places where the owners are only at home at some periods of the year; and the following list of such as *bloom in winter* will be useful to a number of our readers, more particularly such as may be just entering upon their culture.

ACHIMENES PICTA (painted A.).—Yellow inside, red without, and spotted. *Soil.*—Leaf mould and loam; should be cultivated in wide shallow pans.

APHELANDRA AURANTIACA (Orange A.).—Bright orange colour; requires great heat to bring it into flower. When in bloom remove it into the coolest part of the stove—it will last then a long time in bloom.

AMARYLLIS (Hippeastrum) AULICA (Courtly A.); red with white stripes.—A fine bulb with large handsome flowers; should be grown in a bark pit, and when in flower removed into the stove.

BEGONIA RAMENTACEA (Branching B.); white.—A dwarf growing species, flowering from July to December. A very desirable plant, with roundish leaves that are red underneath.

CENTRADENIA FLORIBUNDA (Many-flowered C.); pale rose.—A dwarf bush with abundance of blooms. The stems and leaf-stalks are bright red.

ERANTHEMUM PULCHELLUM (Pretty E.); blue.—A charming winter-blooming plant of easy culture. May be grown to a large size if frequently repotted, and the ends of the shoots stopped from the September previous to the season of blooming the year following. It may then be three feet high, and as much through.

E. STRICTUM (Upright E.); purple.—A compact growing plant, with numerous spikes of bright purple flowers; flowering from October to January. A very desirable plant.

EUPHORBIA JACQUINIFLORA (Jacquinia-flowered E.).—This is a graceful plant with small bright scarlet flowers, produced on the upper part of the shoots made the summer previously. The branches are slender, and curve downwards, and the flowers are arranged on the upper side, numerously and thickly; thus rendering them an elegant ornament for ladies' hair. Grown in quantities in some of the nurseries round London, for supplying the dealers in cut-flowers in Covent Garden.

GARDENIA FLORIDA (Florida G.).—Already described in a former number.

GESNERA PICTA (Painted G.).—A neat free-flowering plant, lately introduced from Brazil, having scarlet and yellow flowers tipped with green, produced numerously from the upper parts of the stems. Very desirable.

JASMINUM LIGUSTRIFOLUM (Privet-leaved J.).—A very pretty sweet-scented Jasmine, of dwarf habit, flowering when very young. The blooming season of this highly perfumed species extends through nearly half the year.

J. SAMBAC PLENO (Arabian Jasmine).—Double white, strongly perfumed flowers; blooms nearly all the year.

LUCULIA GRATISSIMA (Sweetest L.).—A truly charming shrub. Will flower at this time of the year beautifully in the stove. Answers also planted out in a warm conservatory.

MANETTIA BICOLOR (Two-coloured M.).—Few plants give greater pleasure than this pretty dwarf climber. The small neat foliage enables the flowers to show themselves to advantage; they are bright red tipped with yellow.

POINSETTIA PULCHERIMA (Most pretty P.).—A splendid plant, with large scarlet bractes, frequently six or eight inches diameter; the colour is most brilliant.

RONDELETIA SPECIOSA MAJOR (Larger showy R.).—With very handsome orange-red flowers.

R. THYRSOIDEA, described lately; a new and good acquisition.

SALVIA GLOXINÆFLORA (Gloxinia-flowered S.).—A truly splendid ornament for the stove, at a time when flowers are scarce. Easily cultivated.

(To be continued.)

FLORISTS' FLOWERS.

CINERARIAS.—Some of the early bloomers will now be coming into flower, and may be moved into the greenhouse. Those intended for exhibition should be carefully attended to, to prevent a single degree of frost reaching them; at the same time they must be excited as little as possible. The great object is to keep them growing slowly, so as to develope a large quantity of large foliage before the flowers appear. Give air abundantly at all seasons not actually frosty. In dry weather take off the lights of the pit entirely. In wet weather tilt them up either behind or, what is better, place the tilt in the middle of the rafter, and let the edge of the light rest upon it. This gives a thorough draft of air to every part of the pit. Water occasionally; even now Cinerarias require more water in winter than any other plants in pits. Smoke with tobacco frequently; the green fly is the greatest pest to the Cineraria and Calceolaria, and must be kept under. T. APPLEBY.

THE KITCHEN-GARDEN.

EVERY vacancy amongst the *cabbage crops* should be filled up, and not one plant allowed to be missing. Where the plantings are not very extensive, they may easily, by the assistance of a boy with a basket, on a dry day, be kept clear of decaying leaves, and the leaves may always be turned to some account either for the piggery or the manure pit. Surface stirring should not be neglected when the weather is favourable, as attention to this point is not only conducive to the maintenance of health and vigour amongst all crops, but is also a protection against severe frost.

Keep previous directions in view with regard to all tender and advancing crops, which should be occasionally dredged with charred or other kind of dry dust. Trifling as such attentions may appear, depend upon it the after results will be very satisfactory. Those who have any quantity of *cabbages* or *coleworts* now turned in, should secure them by lifting and laying them in thickly

together in some sheltered corner, shallow trench, or other place where they may be slightly protected when severe frost arrives. The winter varieties of *broccolies* now coming in, and all those in a forward state, should meet with the same treatment. An excellent supply of good vegetables may always be continued throughout the whole winter and early spring months by a little foresight in cropping, fostering, and protecting, &c.

The banking and otherwise protecting of the early or forward blanched *endive*, *lettuce*, &c., should be kept in view if not already secured, and order and neatness should every where be kept in practice at all times and seasons. At the present time, the next year's cropping operations should be pretty well settled in the mind's eye, with regard to the place each future crop is to occupy, and also by what each crop is to be succeeded; if these points were kept in view, there would be no waiting at any time either for seed or plants, but each would be prepared in readiness for its due season.

On wet days and during rough weather *the root crops* of all kinds which have been stored should be looked over; straw mats and useful protectors of various kinds should be made, and the old ones repaired; thatched hurdles are always useful, and temporary frames may be made from thin scantlings and then thatched, covering some with asphalte, others with canvass painted. Where hedge trimmings, evergreen prunings, &c., abound, famous protectors for hot-beds, linings, &c., may be formed by placing them in flat bundles, and tying them snugly together with two or three withes. When the prunings are short, we work-in artichoke stalks or some other stored refuse; indeed, every kind of refuse we find worthy of being carefully stored, and much loss of time and labour too is saved by always having such things in readiness when required.

A warm border may now be sown with *radishes* and *Early Horn Carrots*, drilled and slightly covered with straw haulm or fern. Slight hotbeds may also be made for the purpose of forwarding *radishes*, *carrots*, *potatoes*, &c.

Cucumbers, where still produced by frames, pits, or hotbeds, should now have a beginning made with well-wrought fermenting materials. Our own practice is, to lay a good foundation of refuse prunings, bush faggots, and refuse rough wood, placing on this the hotbed of well-worked leaves about 18 or 20 inches thick; on this again, we place the frames, and then the linings the whole way round, to the top of the frames, protecting the linings with refuse evergreen prunings, furze, faggots, &c., tied the proper length with two or three withes. A kindly bed is thus soon ready for the plants.

Potatoes, of the early kinds, should be placed in heat to make shoots two or three inches in length, rubbing off all the shoots, with the exception of one, previously to planting out.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

I now proceed to give the recipe for sugar beer, which I mentioned in my last paper. It has been kindly given by a gentleman in whose family it is constantly used, and who makes it himself, with the assistance of a servant; and those members of my own family who have drank it, state that it it is quite equal to any beer they have ever tasted.

"For a ten gallon cask of tolerably strong ale, take 1½ lb of hops. Boil these for five minutes, and *no longer*, in eleven gallons of water—the extra gallon is required to fill up the cask, as the wort shrinks by evaporation, cooling, and fermentation; strain off the mixed liquor, and dissolve in it 14 lbs of *Foot West Indian* sugar (the light-coloured, weak sugar must not be used); pour the wort into the cask. There will be about half a gallon over, this will be needed to supply the shrinking of the wort. Set the cask with its *end upwards*, and have the bung or cork hole at the top, leaving this open. When the wort is nearly cold, add a pint of yeast of the best quality. Place the bung *lightly* over the hole, and remove the yeast once a day, as it works through the hole, adding the spare wort, so as to keep the cask rather more than full. The wort soon begins to ferment, and will continue working for about three weeks. Then draw out of the cask about a quart of the beer, and dissolve in it, by boiling, half an ounce of isinglass; let this get quite cool (otherwise it will set the beer fermenting again) and return it into the cask. This fines it; and then in a week or so, it will be fit to drink. The tap should be placed about two inches from the bottom of the cask, to avoid drawing off the sediment. For a weaker beer, and in larger casks, 1¼ lb, or even 1 lb of sugar per gallon may be used, with the same proportion of hops, viz., 1½ lb for every ten gallons."

It is, or ought to be, a consideration even to the affluent, to obtain a *luxury* at the cheapest possible rate; and beer is decidedly a luxury, except in cases of weakness, or constitutional delicacy of health. Where this is the case, and means are small, it is a consideration of some importance to obtain it with ease, at a cheap rate, and at the same time good. Any one can make this beer whose house possesses a boiler, at least in small quantities; the process is neither dirty, disagreeable, nor troublesome; and where ladies are concerned who may not possess a man-servant, it is an advantage to be able to brew without expense and inconvenience.

The dark-coloured, strong sugar, which is best for this purpose, costs about 4d. per pound. Hops are now about 1s. 3d. per pound, therefore good table-beer may be brewed for less than 5s. 6d. the 10-gallon cask; and ale for a trifle more. But, I repeat, that only in cases of absolute necessity should those possessing narrow means indulge in this luxury; and where means are *not* narrow, health will, in nine cases out of ten, be best secured and enjoyed by abstaining from it.

I have had the advantage of conversing with some of the best practical economists,—those who have themselves gone through the *different* stages of affluence and poverty, and each has borne testimony to the fact, that *doing without* all that is not absolutely essential to the support of life and health, is the only *real* economy. This I have impressed so often upon the attention of my readers, that I have no doubt they are weary of reading it; still, unless we go to the root of the matter—unless we resolutely ascertain the truth, and repeat it without regarding the distaste which it may excite, we shall not be doing our duty fully; and it may be, that by continual repetition some good will be done. I do not write for those whose means are such as to allow of their economising, as it were, for amusement; or even for those who feel it right, and a sacred duty to be careful of every thing which a merciful God places in their hands; but I write for those (in whom I trust, also, the same holy principle dwells) whose means forbid indulgence of any kind; and require the strictest and most self-denying practice in matters of the most trifling nature.

It is a great advantage to us, when our little income is an ascertained one—not subject, I mean, to fluctuations from various causes, and where it is also received at regular times, however far apart those times may be. When money comes slowly in, or in trifling sums, I know how much inconvenience arises, and how little it seems to do, in comparison of what it ought. This may seem to many an ignorant remark;

but I am sure those who have experienced it will vouch for its truth. I have known that money due to the amount of three or four hundred pounds, has come in so slowly, and in such little sums, that where claims were large and imperative it all ebbed away, under such disadvantages, that it seemed to leave the recipient unconscious of ever having received it. A sum received in *the lump*, even at a long date, effects more real good, than when scattered like dust over a somewhat less portion of time. If this is the case with large sums, where means are crippled, how much more so must it be when they are so very small as to need our utmost efforts to exist without distress or debt!

When our income is regularly paid, it is an excellent plan to set apart particular sums required for stated objects—to seal them up in paper, each labelled with its destined application, and to lock them up in a safe place. I have known this plan adopted with success and comfort, by one lady in particular, whose income did not call for any strict economy indeed, but whose abhorrence of debt, and knowledge of human infirmity, led her to guard sedulously against it.

Rent, taxes, rates,—any bills that may have come in, and cannot, from some inconvenience, be instantly paid,—in fact, all fixed and ascertained expenses should be thus laid by, and *then* the overplus is ready for the weekly consumption, and we are not dreading the visit of the tax gatherer, and the terrors of "quarter day." We all, I daresay, feel how unsafe it is to have money lying by us, how busy our fancies are to conjure up reasons why something "very cheap," or "so extremely useful," is actually wanted, and that such a tradesman will not send in his bill, or want his money if he does send it in, for some time to come, so that we may venture thus to employ it *just this once*. All this is dangerous trifling, and leads from small beginnings to disagreeable if not downright dishonest results. Let us honestly and steadily seal up our money as it comes in, and shut our eyes to every thing, however useful and desirable, that *any one else's* money must be employed to buy.

"Owe no man anything, but to love one another," is a Scriptural command; and although there are, unhappily, cases in which debt and difficulty arise, over which we have no control, yet these are few in comparison with such as are brought on by carelessness, folly, and extravagance, and the honest, God-fearing heart, will strain every nerve to pay all, even to "the very last mite."

NEW OR CHOICE CINERARIAS FOR 1851.

	s.	d.
Adela Villiers (Henderson's); rosy crimson and white, in equal proportions, large size and beautiful form; a first-rate flower	5	0
Amy Robsart (Henderson's); lilac rose, self, dark disc, fine form	7	6
Angelique (Henderson's); carmine, with grey disc; a beautiful and distinct variety	3	6
Annie (Henderson's); white centre, broadly margined with dark plum colour; a distinct and striking variety	2	6
Beauty of Peckham (Ivery's); clear white margined with crimson flower; large and well formed	1	6
Bessy (Henderson's); fine rich plum; good habit	3	6
Blue Perfection (Ivery's); deep blue, size average, outline fair, habit good, bloom abundant, colour quite new; a most desirable variety	10	6
Charlotta Grisi (Henderson's); white, tipped with pale blue; very dwarf	3	6
Compacta (Pond's); white, edged with purple; dark disc; fine	3	6
Curiosity (Henderson's); purple, shading to white	3	6
David Copperfield (Henderson's); disc grey, surrounded by a belt of rosy crimson, which shades off to a deep violet blue; fine broad petals, and large flowers; a new and desirable variety	10	6
Desdemona (Henderson's); white, tipped with lilac flowers; large and distinct; a good variety	3	6
Delight (Henderson's); pale lavender; distinct, and new in colour	3	6
Edmondsiana (Bell's); blue, with white centre, of excellent form and habit; very distinct	1	6
Electra (Ivery's); violet purple; petals broad, notch scarcely perceptable, habit good, average size, colour new, bright yellow disc; flowers abundantly	7	6
Emperor (Henderson's); rosy crimson; very large bold flower	3	6
Empress (Ivery's); clear white ground, edged with rosy purple; fine	5	0
Fearless (Ivery's); light blue, fiery centre, and white disc; form good	5	0
Flora Mac Ivor (Henderson's); brilliant crimson, of good growth and habit; a very fine variety	3	6
Formosa superba (Pond's); bright rosy crimson	3	6
Handel (Rogers's); pure white, tipt with light blue lilac, very dwarf, excellent habit	7	6
Jetty Treffiz; clear white, tipt with azure blue; disc of the same colour, which changes to a deeper blue as the flower advances; of free growth, and fine dwarf habit; a first-rate flower in all its points	10	6
Julie (Henderson's); fine bright blue; dwarf habit	1	6
Lady Constance (Henderson's); beautiful pale blue, with grey disc, habit good; a distinct and striking variety	5	0
Lady Gertrude (Henderson's); charming dark blue flowers, large and well formed, habit dwarf and compact	3	0
Lady Lushington (Henderson's); light sky-blue; good form	5	
Lady Vernon (Rogers's); a distinct and well formed flower, very dwarf, pure crystal white, beautifully tipped with shaded lilac purple; disc rich and well raised	0	
Lettice Arnold (Henderson's); a beautiful rosy purple and white in nearly equal proportion, violet shaded disc, flowers large, habit dwarf, bearing a very large compact head of flowers; a first-rate variety	10	
Little Wonder (Ivery's); white, tipped with rosy crimson, fine habit, and attractive variety	5	
Madame Meillez (Ivery's); pure white ground, black eye, blue edge, petals broad, bloom abundant, and habit excellent	7	
Madame Sontag (Henderson's); ground colour the finest white, broadly margined with beautiful mazarine blue, disc *dark blue*, fine form, habit dwarf, and bears a large compact head of flowers; a first-rate variety	10	
Magna (Bell's); dark blue flowers, large and finely formed; habit dwarf and compact	5	
Monarch (Ivery's); dark plum colour flower; very large	3	
Othello (Mackay's); dark velvetty purple, very distinct and novel colour	3	
Pauline (Henderson's); violet plum, large bold flower, fine form, and distinct	5	
Pride of Dorking (Ivery's); purple rosy purple, white centre	3	
Prince Joinville (Henderson's); dark purple; very fine	2	
Princess (Kendall's); white, tipt with blue, of good form and habit	2	
Renville (Henderson's); pale violet blue, with a narrow belt of white round the grey disc, which is small; a beautiful flower of first-rate form, excellent habit, and very distinct from anything in cultivation	10	
Sanspariel (Kendall's); white, tipt slightly with sky-blue; distinct	2	
Tam o' Shanter (Ivery's); slate coloured blue; very distinct and fine	2	
Wedding Ring (Henderson's); petals equally and distinctly divided with white and bright crimson, dark disc, good form	2	
Wellington (Henderson's); petals equally divided with white and purplish crimson, maroon disc, good form, and dwarf compact habit	1	

T. APPLEB

WINTER BROCOLI.

SOME of your correspondents would confer a benefi giving a short list of the best kinds of brocoli for

ecially of those which may with certainty be de- for coming into use in the winter months, say middle of January until the end of March. Gene- Cape kinds and Walcheren supply the autumn well; and the latter, when true, often keeps in use nter, but it is far from certain to do so; so likewise ge's and Chappell's, both said to be winter brocoli. no lack of spring kinds, unless it be an exceeding and with me a *sulphur coloured one*, much undulat- leaf, seems to have that property. It is, or has ed *Bowles's Sulphur;* and for hardihood and ex- eness is the best I know. There are few things in trade which cause more uncertainty to the gardener unpleasantness to the seedsman than brocoli; the season may have a powerful influence, but that ays the case. It is no uncommon thing to witness lants with two feet of naked stem, and a large tuft late leaves at the top, looking like some of the have of eastern palms; and, on making inquiry, ld it was from brocoli seed having a high-sounding ich ought to have come into use in February. ppointments are not uncommon; and the exceed- rtive character of the brassica tribe may be urged as ; but we generally see cabbages tolerably correct, of turnips likewise faultless, why then not effect with brocoli? I think the anxiety evinced by the late years to multiply kinds, has led to seed planting them too close together, and consequently ced the class of mongrels I complain of. Pre- were determined only to grow six kinds—two for wo for winter, and two for spring, I should be obliged of your correspondents, well versed in such things, me which are the best six kinds known.—H. T.

TO CORRESPONDENTS.

equest that no one will write to the departmental writers of AGE GARDENER. It gives them unjustifiable trouble and All communications should be addressed "*To the Editor of e Gardener, 2, Amen Corner, Paternoster Row, London.*"

OR SOUTH AND WEST WALLS (*G. H. C.*).—The wall 80 yards high, *south aspect*, requires 3 peaches, 2 nectarines, 4 apri- Duke cherry, 2 pears. *Peaches*—Acton Scott, Royal George, urton Admirable; *Nectarines*—Elruge and Newington; Shipley and three Moorparks; *Cherry*—May Duke; *Pears*— lis and Beurré d'Aremberg. For the wall 20 yards long, 6 *est aspect*, 2 cherries, 2 plums, and 2 pears. *Cherries*—Morello uke. *Plums*—Prince de Tours and Greengage. *Pears*—Beurré Marie Louise.

URRANTS (*H. M. Fern*).—Your practice appears good, there- e it. You need not keep the middle of your black currant Black currant pruning is merely thinning out. You will see ings thoroughly explained in *The Cottage Gardeners' Dic-*

VINE (*J. H. P.*).—If you find excellent roots to your Hambro' rs old, you may certainly move it from your wall to your new , but not until the middle of March. Prune it, however, now many eyes as are absolutely necessary to get it introduced in If you find the roots scanty and wiry looking, let us advise hase a good stout plant from a nursery; and when you plant, ball to pieces, uncoil the roots, and spread them carefully e surface. We believe common charcoal will do quite as well ve as the prepared fuel.

EES AGAINST A NORTH WALL (*Jane*).—A north wall is not lace in Ireland for pears, especially the tender kinds. We to take them all up and plant them on the surface of the sing the soil of course altogether above the ordinary level. If rop the border, set off six feet for the trees; this will be a er level than the front or vegetable ground, indeed wholly Your trees will soon make shorter shoots, and then you may it buds. Pray keep manure out of their reach. *Greengage* ıtful.

PIT (*F. W. T.*).—You ask, "Is it intended to place hot ler the false bottom and outside of the bed, as described at That depends on the object in view. The pit is intended for e; either a cold pit for wintering half-hardy stock, or for umbers, melons, &c. If the former, of course no fermenting ill be needed inside, and, with proper precaution, none on . For the latter purpose, it will merely be necessary to intro- r three trestles to support a few boards running the whole he pit; or, indeed, the pit may be filled up to the desired l finished off with a coating of ashes, on which the pots may Or a stage may be introduced if for half-hardy stock. Of course if for melons or cucumbers the trestles, *&c.*, would have to be taken out, and fermenting material introduced. In this case a trench must be sunk at the outside, front and back, for the reception of warm linings of dung, &c., &c. If the latter were the only object, why a retaining wall may be built both back and front, running as high as the solid masonry. The pit was planned for small amateurs, who frequently change their plans. As to your dung being too powerful, you should try, at least, half tan with it, working the dung well, however, before mixing the tan. On first throwing your dung together, or at least when first very hot, use abundance of water; this will tame it. The tan would be as well half spent. We hope this will be an answer to *Verax* also.

GESNERA COOPERI MAJOR (*Ibid*).—Start it slowly in a comfortable greenhouse until the end of January, and then give it increase of warmth if you can; in fact, stove culture. Do not, however, water much, if at all, until Christmas has passed, and then very moderate at first. You are right about constant excitement; these things require a rest.

LARGE JASMINE (*An Original Subscriber*).—Your jasmine continuing to grow will not be injured by having the points of the shoots nipped by the frost. It is one of those plants that flower on the current year's wood, and may be pruned in mild weather any time to the beginning of April. We would close prune it now, and look over it again in March to cut off any parts that may have been frost bitten.

LONICERA FLEXUOSA PRUNING (*Clericus*).—This bears on the young wood made the same season, therefore should be close pruned; but you may see a full account of pruning in this number.

CUTTINGS (*Ibid*).—Not only three or four cuttings of Scarlet geraniums, but three and forty, and more besides, may be kept in one pot all the winter, just as they were struck in the autumn. Thirty little plants in one pot have a far better chance with amateurs than one in a very small pot. The rule is to place the cuttings round the sides of the pot only, and when they are rooted to thin the inner leaves, so that the middle of the pot or bunch of leaves is not too much crowded; and such pots may be watered regularly as fast as they get dry; there being so many roots to suck up the moisture, there is little fear of damping. Millions of these store pots are kept over the winter in this country, without losing a plant out of a thousand.

GERANIUM CUTTINGS (*Jane, Ireland*).—We are sorry to hear such a bad account of your cuttings; but you began too soon, namely in September, when the cuttings were in full growth. A month or six weeks later would have made a great difference in their capacity of resisting damp; and we fear there is no better help for you than to put up with the disappointment, and try again next year. We believe all of them should have been at once excluded from all outward influences, instead of what you did. After all, the plan is to be looked on more in the way of curiosity than of real utility; but certainly the thing *may* be done.

PLANTS FOR AND FROM CABOOL (*Carig Cathol*).—Thanks for the seeds, but our climate is not suitable for such large soft fruit. We have already tried five kinds of melons from the same quarter, and so have many others, and our experience brought us to this conclusion. To an English resident in Cabool, who knows nothing of gardening, bulbs and annuals are the best flowers to begin with—say the different sorts of *Ipomœa*, or *Convolvolus*, major and minor, *Thunbergias* of sorts, *Lisianthus* of sorts, *Sensitive Plant*, *Cockscombs* and *Balsams*, *Martynias*, *Cleomes*, *Clitoria ternatea*, if not there already, with the "Midnight Lily," or *Ipomœa bona-nox*, are two annuals which all Europeans in the East admire very much. The former grown just as we do Sweet peas, gives a splendid row of the best of all blue pea flowers; and the Bona-nox, planted and trained as our Scarlet runners, loads the evening and night air with its delicious fragrance, and blooms from sun-down all night. *Zinnias*, *Portuluccas*, and *Mesembryanthemum tricolor*, with the different sorts of *Swan River daisies*, or *Brachycome*, might be tried; *Canna* of sorts, *Cinerarias*, *Fuchsias*, *Humea*, *Cobea*, *Lophospermum*, *Maurandia*, *Eccremocarpus*, *Rhodochiton*, *Marvel of Peru*, *Eschscholtzias*. The *Scarlet Mexican Thistle*, the very best of all the thistles, would be just at home at Peshawur. Ask for it by the name of *Erythrolæna conspicua*. You might also send a packet of *German Asters* and *Stocks*; and your best plan would be to trust the whole commission to the Messrs. Knight and Perry, whose address you will find amongst our advertisers; and tell them to recommend you Chilian, Peruvian, and Mexican showy bulbs, or, indeed, any other bulbs to begin with. We cannot well say *what he could send you* in return, but as he knows so little of flowers, we would prefer his own selection before that of our best botanical collectors, as he would be sure not to gather anything but what struck him as very beautiful. Let him mark any such when in flower. Get the seeds when ripe, dry them slowly in the shade, and put them up in coarse paper packets, and send them by the overland route. There is no book about such doings; our own instructions in former volumes are the most comprehensive of any you can meet with in our language; and we have written the whole of them from actual experience. We have received and sent seeds to all parts where the English language is spoken, with more or less success through a period of many years. In the way of vegetables, you ought to apply to some of your West Indian proprietor friends. Their *Pigeon pea* in particular, and the *Mexican Deon* would be a rare treat in the way of nuts; see page 146. Our best *rhubarb* and *brocoli* might also be tried; and why not try a bed of *asparagus* where it could be irrigated in the dry season? At any rate send seeds of it; and pray communicate with your friend in our name, and ask him for a list of everything he has seen grown about Cabool either for use or ornament.

Our pages run the circle of the globe, and we should be most thankful for such information from any clime, so as to render us more useful. In return, we shall be happy to furnish lists, or any information within our sphere, for any settlement in either hemisphere; and the more correspondence we can originate on this subject, the more useful we must be. We had hoped ere this to furnish some very useful topics from our missionary stations in foreign parts, and we are looking forward with interest when our friends and patrons at home shall put us in possession of such information.

JERUSALEM ARTICHOKES STORING (*W. H., Cheetham*).—There is little difference in the effect upon the tubers, whether you leave these in the ground where grown, or take them up and cover them with coal ashes in a dry cool place, but we prefer the latter mode, as it allows the ground to be ridged for exposure to winter frosts.

OLEANDER NOT NOXIOUS TO OTHER PLANTS (*J. L.*).—It is "an old wife's tale" that the Oleander emits a vapour injurious to other plants in the same greenhouse. It is liable to a peculiar insect, the Oleander scale (*Cocus Nerii*).

WINTER TREATMENT OF CHRYSANTHEMUMS (*A Youngster*).—Your practice has been to cut them down close to the pot, and if you do not do this until the leaves have faded, you do right. You then put the pots into a cold frame, and if you take care to give them air freely, to prevent them becoming dry, and to exclude frost, as much as you would from Auriculas similarly placed, you would also do right. This is not the barbarous treatment they usually undergo.

FIXING AMMONIA (*Tirydail*).—We do not recommend chloride of lime for this purpose, as cheaper or more efficient than diluted sulphuric acid, but it removes all other offensive animal smells besides those of the ammonia.

BROWN STOUT (*A Grateful Subscriber*).—Ladling the water into the mash-tub will do very well. Any cooper will tell you how to make a false bottom to your mash-tub, but your old mode of running off the wort will do. Quantities you can calculate as well as we can, from what we have stated in No. 97. Every one knows when beer is fined by its clearness. We cannot state prices of such articles as you inquire about. Putting *liquid manure* on the surface of vacant ground is the most wasteful mode of applying it. Its ammonia is wasted into the air, and by the rains. The best mode is to apply it to the ground just before digging it for a crop, and to water this with it as soon as the crop begins to grow.

DRAINAGE (*An Amateur, Peckham*).—To make your main drains beneath your pathways will be a good plan, and sufficient if they run the whole length of your garden 30 feet wide.

TOBACCO ON SURFACE OF POTS (*L. R. Lucas*).—This is only employed as directed by Mr. Savage (vol. iii. p. 215), that the fumes may drive away the green fly; you must not pour water over the tobacco in watering.

ROUGH PLATE GLASS (*Rosea*).—This is perfectly well adapted for your greenhouse. One of the most elegant conservatories we know has been glazed with it for some time, with perfect success.

W. DE. G.—You tell us you have "an immense quantity of spent," something which looks like "dung," but we were not aware that this is used by "calico printers;" please to enlighten us upon this point, and say what is done with it by the printer, and we will then tell you its value as a manure.

AZALEA SUCKERS (*Elizabeth*).—These should be removed as fast as they appear; and if they persist in coming, serve them as Mr. Beaton today recommends the barberry suckers to be served.

GRASSES (*A Subscriber*).—The grasses we recommended for a cricket ground, will answer as well for a lawn, the object in both being fine herbage. We do not recommend you to trench the ground, as it will render it needlessly uneven for your purpose. Those grasses are not the best for permanent pasture, because here you require the most nutritive grasses, and they widely differ in this quality. If we knew the nature and situation of your soil we could give you a list of pasture grasses.

POROTO BEAN (*J. A. M.*).—Our correspondent has sent us the following extract from Bryant's *Wanderings in some of the Western Republics of America*. We shall be glad if any of our readers can furnish us with the scientific name, and any other particulars relative to this bean, which, if even half-hardy, would be a great acquisition to our culinary resources. We fear, however, that it is only some variety of the Haricot Kidney-bean, none of which are duly appreciated here. "The plant that bears the Poroto bean is hardy and prolific, and I believe would grow wherever sown and attended to. It is not likely that these lines will be read by any labourer, but they may, possibly, by some one who has at the same time the wish and the influence to ameliorate the condition of the poor in their own cottages. In Chili, they calculate a large double handful of the dry bean as a good allowance for a man, but the beans swelling very much makes the allowance a large plateful. I will give the receipt for cooking them:—'Put the beans in an iron pot, cover with water, and boil for half an hour. Throw out the water, draining it with care, for the water is unwholesome, but leave the beans in the pot. Cover again with fresh water, and boil until the beans are nearly done, then drain the water off a second time. For the third time of heating up, keep the beans in the pot, but add no water; instead, add a little (this is for English cottages) dripping, kitchen stuff, salt-butter, or lard, according to the means. Season with salt, and, if it can be afforded, pepper, and heat the mess up for a quarter of an hour, stirring gently now and then.' I have often, after a long day's work, sat down to a plateful of the above humble dish, with a relish I have scarcely felt at the Café de Paris, or the Trois Frères; and can add that I was more fit for work after the first than the last. I will answer for it, than an English labourer would go back to his work with his inside in a more perfect state of content, than on a scanty meal of bread and cheese, and, moreover, do his work easier. Besides, the remainder may be heated up again for supper; and no labourer can eat food more invigorating, and at the same time more satisfying. As to the usual growl of—'Try it yourself,' I never recommended anything, unless I have tried it; and I can truly aver, that I was never more fit for real hard work than when I lived for many weeks upon those Porotos."

FLOWER-BED (*B. A.*).—Your large bed of geraniums will look extremely pretty. Your white-edged is *Mangle's Variegated*: it will not at all have the bad effect you fear—quite the other way; but *Stratiotes* and *Purple Nosegay* are poor dull things for such a bed. *Unique* and *Diadematum* would be far preferable. *Lucia rosea* will not answer in this arrangement.

ANAGALLIS (*Ibid*).—They are low-spreading plants, but they do not come true from seeds. Get a plant or two of *Carnea*, a light pink, and *Philipia*, a large blue, and you may soon get up a stock—they root as easily as verbenas. *Calceolaria amplexicaulis* is very good for a bed, but the soil should not be rich.

SOIL FOR STANDARD ROSES (*H. W., Lewisham*).—In the absence of good loam, or rose soil, rotten cow-dung three inches thick, and forked into the light soil, is the next best application. In your soil, the drainage from a dung-heap, stable, or cow-house may safely be used now, next March, May, June, and July. Give a gallon to each plant every time. There is no rule for the *strength of liquid manure*—weak and often is the safest. Have nothing to do with guano. If you look to our indexes you will find lists of all the *climbers* you require.

WHAT IS MULCHING? (*Ibid*).—We have certainly answered this question half a dozen times; and the best of the matter is, that perhaps no English Dictionary is without an approach to a correct definition. It is putting undecomposed stable dung or other vegetable litter over the soil above the roots of plants, to keep that soil from drying too much.

REPOTTING PLANTS (*W. T.*).—You wish to know the best time to repot plants that rest through autumn and winter, and you mention Lilies, Cyclamens, Cacti, and Mesembryanthemums. You will obtain that information in full in *The Cottage Gardener's Dictionary*; but as that work is not all out yet we may state that *Lilies* (the Japan varieties we suppose you mean) must be potted immediately, and kept just moist enough to encourage new roots to be emitted. They ought to be placed in a cool pit, and just protected from frost. *Cyclamens* repot in a month's time. *Cacti* and *Mesembryanthemums* pot in March.

SAND FOR CUTTINGS (*Ibid*).—Nothing answers so well as silver sand for cuttings. River sand finely shifted, and washed from all impurities, is the next best. Sea sand is too strongly impregnated with salt.

HARDY AQUATICS (*H. G. B.*).—We thought our former reply to your queries explicit enough. The clay at the bottom of your cistern for hardy aquatics should be two inches thick, upon that a layer of rich loam four inches thick. We recommend you to grow in it the following:—*Menyanthes trifoliata, Aponogeton distachyon, Hottonia palustris*, and *Butomus umbellatus*. Your cistern is too small for a water lily, unless you devote the whole to it. We do not know where you could procure seeds of them; and, if you do get them, they will be several years before they flower. Plants are cheap, and flower the same year.

ELDER FLOWER WINE (*T. Phillips*).—No. 8.—Take the flowers of elder, and be careful that you do not let any stalks in; to every quart of flowers put one gallon of water and 3 lbs. of loaf sugar; boil the water and sugar a quarter of an hour, skim it, and pour it on the flowers, and let it work three days; then strain the wine through a hair sieve, and put it into a cask; to every 10 gallons of wine put one ounce of isinglass, dissolved in cider, and 6 whole eggs, close it up, and let it stand six months, and then bottle it.

(*J. P. Jones*).—No. 9.—To 9 gallons of water add 30 lbs. of lump sugar and the rind of 12 lemons, which boil for half an hour; when new milk warm, put in a *peck* of elder flowers, *free from stalks*, tied in a muslin bag, which allow to remain in the liquor for twelve hours, then squeeze out; after which, put a little yeast on a toast, to work for a couple of days, then barrel it; after which, add 12 lbs. of raisins chopped, the juice of the 12 lemons, and 1 ounce of isinglass; in six months bottle it.

STOVE MAKER (*Verax*).—J. B. has said that either of those who advertise in our weekly columns will do.

ERROR (*Rufus*).—The error at page 16 of *The Cottage Gardeners' Dictionary*, under the head ACIS, was one by the printer. It should be "Snowflake," instead of "Snow." Thanks for the correction.

ERROR.—At page 150, col. 1, line 11 from top, of the present volume, for *low* read *high*.

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WEEKLY CALENDAR.

M W D D	DEC. 26—JAN. 1, 1850-51.	Weather near London in 1849. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
26 Th	St. Stephen.	30.491 — 29.798	42—34	N.W.	0.02	8 a. 8	54 a. 3	0 1	23	0 48	360
27 F	St. John Evangelist.	29.530 — 29.434	41—24	N.	—	8	54	1 17	24	1 18	361
28 S	Innocents.	29.552 — 29.340	27—16	N.	—	9	55	2 31	25	1 48	362
29 Sun	1 Sunday aft. Christmas. Velvet	29.641 — 29.548	36—26	N.W.	0.02	9	56	3 43	26	2 17	363
30 M	[Duck comes.	30.219 — 29.952	39—28	N.E.	—	9	57	4 53	27	2 46	364
31 Tu	Silvester.	30.322 — 30.902	38—17	N.W.	—	9	58	5 59	28	3 15	365
1 W	Circumcision.	30.271 — 30.213	35—19	W.	—	8	1v	7 0	29	3 44	1

If we were asked what science is most important for the gardener to study as an assistant to his practice, we should reply—Botany; and if the querist proceeded to enquire whose work he should select for his first author, we should add—one by Sir James Edward Smith—*An Introduction to Physiological and Systematical Botany*. It is true that the author was bigotedly attached to the artificial system of Linnæus, but that system is an admirable index to the contents of the large groupes in the Natural System; and he who neglects to make himself well acquainted with that index needlessly deprives himself of an efficient guide. Independently, however, of the book we have named being such a guide, it abounds with sound information and views relative to the structure and nomenclature of plants, and is in every respect the most powerful lamp the student can take to illuminate his path.

The author was born on the 2nd of December, 1759, at his father's residence in that nursery of florists and botanists—Norwich; but it is probable that he would have been devoted to the paternal study of crapes and bombazines, in which that city rejoices for equal celebrity, had it not been that a delicate and unhealthy boyhood had more even than usual consigned him to the companionship and solicitude of his mother. The flowers she loved to cultivate became also his associates and sources of amusement; and the lessons she taught, and the love for knowledge, "all about plants," which she imparted, determined his future career. Let the mother who reads pause over this fact, and let us add, before we pass on, this testimony from one of the best of men:—"The mother it is who presides over those home virtues, the cultivation or neglect of which in the first ages of life often gives a right or wrong bias to its after years." Fortunately, Sir James's father was a man of cultivated mind, and did not thwart his son's desire to pursue science rather than trade—so he was permitted to proceed to Edinburgh, and enter upon the studies desirable for a graduate in medicine. It is not probable that he took much delight in the healing art; for though he obtained Dr. Hope's gold medal for his proficiency in botany, yet he protested against this science being valued "only in proportion as it affords nauseous drugs or galves." It is certain, moreover, that though he attained a doctor's degree, he never was anxious for professional employment. After removing to London to complete his medical studies, and happening to breakfast with Sir Joseph Banks, the latter mentioned that the entire library, manuscripts, and collections of Linnæus were purchasable for one thousand guineas. The ardent young student saw the importance of possessing such a treasure, and laboured assiduously to obtain the necessary funds. His father eventually consented to provide them: the purchase was completed in 1784; and the whole, in twenty-six cases, had just departed when Gustavus III. returned to Sweden. He despatched a vessel to intercept what should have been a portion of the national museum, but he attempt was too late. The freight arrived safe in England; and on the death of Sir James this memorable collection was purchased by the Linnæan Society, and now forms a portion of its illustrations of Natural History. This Society owes its foundation, in 1788, to Sir James, and he became its first president. There had previously existed a Natural History Society, but it had never flourished, and finally died of exhaustion in 1794. Previously to the foundation of the Linnæan Society, in 1786 and 1787, he graduated at Leyden, and extended his travels through Italy and France, the record of which is preserved in his *Sketch of a Tour on the Continent*. During his residence in London he at first lodged at Chelsea, that favourite roosting-place of our early botanists; but upon becoming President of the Linnæan Society—an office he continued to hold until his death—he removed to a house in Great Marlborough-street, and remained there until his marriage in 1797, when he finally adopted a residence at Norwich, returning to London for two months annually.

Whilst residing in Great Marlborough-street he was selected to give instructions in botany to the Queen and the Princesses, then residing at Frogmore; and that he was well qualified for the office will need no testimony to those who had the pleasure of listening to his lectures at the Royal Institution and elsewhere. In 1818 he attempted to deliver a similar course of lectures at Cambridge; and he owed it to his own uncandid designs and arrogance that he was prevented. Dr. Martyn, the Professor of Botany, incapacitated by old age and infirmity from lecturing on the science, had solicited Sir James to supply his place, and so far all was unobjectionable; but when the tutors of the University found that Sir James, who was not a member either of the University or of the Church, purposed to make his lectures a stepping-stone to the Professorship, to the exclusion of men every way qualified to fill it, and who belonged to both, they very justly interfered effectually to exclude him. Sir James attacked the University in a pamphlet, entitled, *Considerations Respecting Cambridge*, which is only one more example how very foolish wise men can become when they are their own advocates.

We have nothing to add to the particulars with which one of his biographers thus concludes his narrative:—The health of Sir James Edward Smith had been for some time declining, but pursuing the even tenor of his scientific pursuits, and blessed with every comfort which a congenial union can afford, his time glided on without the slightest relaxation of ardour in his botanical pursuits, while his latest and even unfinished works attest there was no diminution either of his zeal or his success in affording both information and satisfaction to those who were proud to look up to him as the first botanist of the age. Although none of his friends could be altogether unprepared for the melancholy event, still the decease of Sir James was somewhat sudden. The feebleness of his frame seemed to have in some degree recovered a little of its former tone during the last week of his existence, so that he was enabled to pursue his accustomed labours, and even to enjoy the exercise of taking a walk without any great fatigue. He was attacked, however, on Saturday, March 15, with such an alarming degree of debility as almost immediately to extinguish the hopes of his recovery. Under this attack he gradually sunk, till at about 6 o'clock A.M. of March 17, 1828, he placidly resigned his breath, and his spirit returned to Him of whom Sir James hath said—"He who feeds the sparrows, and clothes the golden lily of the fields (Iris Pseudacorus) in a splendour beyond that of Solomon himself, invites us, his rational creatures, to confide in his promises of eternal life. The simple blade of grass, and the grain of corn to which 'He gives his own body,' are sufficient to convince us that our trust cannot be in vain. Let those who hope to inherit these promises, and those who love science for its own sake, cherish the same benevolent dispositions. Envy and rivalship in one case are no less censurable than bigotry and uncharitableness in the other. The former are incompatible with the love of Nature, as the latter are with the love of God; and they altogether unfit us for the enjoyment of happiness here or hereafter."

Among the numerous works of which Sir James E. Smith was the author, it may be desirable here to point out one or two, perhaps, besides his Tour, as those upon which his fame was in a great measure reared, and upon which it may be said to be permanently established. Of these, *English Botany* is entitled to the first consideration, as containing a description and a coloured figure of every plant known to be indigenous. This work consists of 35 octavo vols., and contains 2592 figures of British plants.

It is a curious but a melancholy coincidence, that on the very day he entered his library for the last time, the packet containing the 4th volume of his *English Flora* reached him; and he had the gratification of witnessing the completion of a work upon which his friends have frequently heard him express an opinion that it was the one which would eventually redound most to the estimation of his knowledge as a botanist and his credit as an author.

Meteorology of the Week.—At Chiswick, observations during the last twenty-three years show that the average highest and lowest temperatures of these days are 42.8° and 32°, respectively. The greatest heat observed, 56°, was on the 30th of December, 1833; and the lowest cold, 12°, on New Year's day, 1837. Rain fell on 57 days during the period, and 104 days were fine.

Continuing our observations from page 172, we may remark, that although an excess of water applied to the roots of plants is injurious to them, yet all of them are benefited by a due supply of that liquid, and the supply has to be regulated by the amount of their daily transpiration. The gardener knows that this differs in every species, and during different seasons. For instance, in a dry hot day, a sunflower three feet and a half high transpired 1lb. 4ozs., being seventeen times more than the human body; during a hot dry night, 3 ozs.; during a dewy night there was no transpiration; and during a rainy night the plant absorbed 3 ozs.

Therefore the gardener finds it best to apply water during dry weather, early in the morning, just before the chief demand occurs, which is from six A.M. till two in the afternoon; and during moist weather he refrains from the application entirely. Then again, the gardener keeps his agaves and other fleshy-leaved plants in a dry stove, for they transpire but sparingly in proportion to their mass, and require watering but seldom, and then

abundantly; for they take up, as in their native siliceous soils, a large supply, and retain it pertinaciously in defiance of the long-protracted droughts to which they are exposed.

In the same species we have always found varieties transpire abundantly, and require a larger supply of water in proportion to the extent of their transpiring surface. Thus the broad-leaved fuchsias and pelargoniums transpire from two to three times as much as those varieties which have smaller and less abundant foliage.

The want of a few suggestions for the cultivation of plants in rooms has been so often brought to our notice that the subject may be here glanced over, especially as it will afford the opportunity for a few remarks upon potting generally.

Plants growing in pots, placed in our dwelling-houses, may be as successfully cultivated as other plants placed in greenhouses. It is quite true that they very rarely are so cultivated; but this does not prove that such success is impossible—it demonstrates no more than that either the cultivation is more difficult, or is less judiciously attended to, or that both these sources of failure attend upon our room plants; and that they do suffer from both, is the actual truth.

As the plants are placed in or near windows, there is no injurious deficiency of light, but as it comes to them most intensely on one side, they should be half turned round every day, that their heads may have a uniform appearance, and the leaves be not turned only in one direction. If the window faces the south, the intense heat and light should be mitigated during the middays of the summer months by lowering the blind.

Whenever the outdoor temperature is not below 34°, the plants will be benefited by having the window and door of the room open. They cannot have too much fresh air at any season of the year, if they are not grown under a Wardian case; for the exterior air always contains a due proportion of moisture, whilst the air of a room is as invariably drier than is beneficial to plants.

A due supply of moisture in the air, as well as in the soil, is absolutely necessary to our room plants. To obtain this in the best available degree, little porous troughs constantly filled with water should be kept on the stand among the pots; and the saucers of the pots themselves, if made according to Hunt's plan, may always have a little water remaining in them. The application of water to the soil requires far more attention than it usually receives. Room plants mostly are the protegés of the ladies, who administer the water with their own hands; and so long as the novelty and leisure prompt to this attention all goes well; but no room plant ever existed, perhaps, which was not at some period of its life left to the tender mercies of a housemaid, with the frequent usual consequence of a deluge of water, cold from the pump, after the roots had become heated and parched by days of total abstinence. Plants so treated cannot flourish. The water should be allowed to stand in the kitchen for some hours before it is applied to the plants, so that it may be as warm or warmer than the soil to which it is to be added. It may be given in dry hot weather every second day, and in such abundance as to pass slightly through the earth into the saucers. These must be emptied as often as water appears in them, unless they be Hunt's saucers, in which case a little water may be allowed to remain, as before mentioned. These are general rules, to be modified only in the instances of plants requiring peculiar treatment. Among the exceptions are the different kinds of mimulus and some others, which are benefited by the saucers being constantly filled with water.

If the thermometer does not fall below 60° during the day, nor to less than 34° at night, the usual room plants may be kept in healthy growth during the winter. There is a much greater variety of temperature at command, even in a small room, than is generally imagined. Thus, in one twelve feet square, with a fire burning, and having the door open, we have observed the thermometer on the floor 59°; at six feet from the floor, 67°; and at nine feet, 74°. During severe frosts, the higher plants are placed from the floor the less liable will they be to suffer during the night, when the fire has become extinguished.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

THE SLENDER-STEMMED HYPOCYRTA (*Hypocyrta gracilis*).—*Paxton's Flower Garden*, p.123.—The name of this *Gesneriwort* is derived from *hypo*, beneath, and *kurtos*, inflated: alluding to the swelling out of the bottom part of the flowers; *gracilis* is sufficiently explained above. The different species belonging to this genus are so dissimilar in their outward appearances, that we find Martius, who first named the genus, forming two other genera out of two species now proved to be only so many species of Hypocyrta. The false genera alluded to are *Onocogastra* and *Codonanthe*; and all three, singularly enough, present the same idea as to the inflated bottom

e tubular flowers; for if we translate them accord- o our wont, we find *Oncogastra* to be from *onkos, a ng*, and *gastra*, the belly; and *Codonanthus* from *n, a little bell*, and *anthos*, a flower; therefore, we pause for further examination before we chime in Lindley, who believes *Hypocyrta gracilis* to be a es of *Alloplectus*, though that genus be in close ty with *Hypocyrta*. The true Gesnerworts—from *ra, Gloxinia, Achimenes, Niphæa, Nematanthus,* igh *Besleriads* and others, on to *Hypocyrta*—are all es of the warmer parts of Central and South ica; and every addition made to their numbers is l by our industrious gardeners with strong feelings gard and satisfaction. Witness the universal move, here and on the Continent, to multiply the best s of *Achimenes* by the use of the pollen. Hence our to record the appearance of the present species in ages of our oldest acquaintance of the illustrated s to the cultivation of the delightful science of ıy—the *Botanical Magazine*, t. 4531, with the fol- ıg specific definitions:—

e whole of this creeping stove plant is slightly hairy. purplish brown, rooting at the joints. *Leaves* in pairs, , egg-shaped, rather pointed, dark green, and spoon- above, paler and often marked with red beneath. *rs* single or in pairs on short stalks; calyx, or outer -cup, in five narrow long-pointed segments, red near talk; corolla, or real flower leaves, creamy white, orange ed, funnel-shaped, with a swollen, bent tube, and the h divided into five round segments. It is a native of l, and was introduced in 1849, by Messrs. Backhouse, rk. It belongs to the Natural Order *Gesnerads*, and to *idynamia* 2-*Angiospermia* of Linnæus.

RK PURPLE OCHNA (*Ochna atro-purpurea*).—*Bo- al Magazine*, 4519.—This genus, *Ochna*, was named t the middle of the last century, by a German ıist, and author of several botanical works, named Schreber; and about forty years since the elder Decandolle proposed it as the head of a small Natural Order of plants, now called *Ochnads*, in the Annals of the Museum of Natural History, Paris. Since then *Ochnaceæ* has found its place in the consecutive arrangements of various botanists, either in the neighbourhood of the *Rueworts*, or by the side of the *Quassiads*, whose bitter properties several of the Ochnads possess, though in a milder degree; but the principal distinguishing character by which *Ochnads* are best known from neighbouring allies, is the large fleshy receptacle or torus around which the fruit grows, and from the top of which the style grows. There are six or seven more species of Ochna that have been introduced to our gardens, all stout evergreen bushes, except *arborea*, which is an evergreen tree, and like this *atro-purpurea*, a native of the Cape of Good Hope. Our present subject, notwithstanding its name, does not depart from the yellow colour prevalent in the flowers of all Ochnads; and beautiful yellow flowering things most of them are. The flowers are produced on side racemes or spikes from the angle between the leaves and the branches; these *leaves* are smooth and shining, much in the way of those of a healthy pear-tree, hence the name, *Ochna* being the Greek term for the wild pear-tree. As far as we are aware of, this is the first time *Ochna atro-purpurea* has been figured in England, but it is not new to science, having been published as far back as 1796, by Leonard Plunkenet, in his *Almagestum Botanicum*.

This greenhouse shrub belongs, as above stated, to the Natural Order of *Ochnads*, and to 13-*Polyandria* 1-*Monogynia* of Linnæus. Its specific name alludes to the purple colour of its calyx, and which becomes still darker as it dies off. It is a native of the south-east point of Africa, between the Cape of Good Hope and Delagoa Bay. It bloomed for the first time this year at the Kew Gardens, though introduced in 1823—a result obtained by giving it more warmth in winter. The divisions of the *calyx* are egg-shaped; the edges of the *leaves* are sometimes smooth, and sometimes acutely toothleted.

JAVANESE GORDONIA (*Gordonia Javanica*).—*Botanical Magazine*, t. 4539.—This is an acceptable addition to

the beautiful Gordonias of the western hemisphere, introduced by Messrs. Rollison, of Tooting, from Java, as the specific name implies. The genus *Gordonia* was named by Ellis, a London merchant and botanist, in compliment to his friend Mr. James Gordon, then a nurseryman at Mile-end; and so great was the competition for having the honour of naming such beautiful plants as *Gordonia pubescens* and *lasianthus*, from the swamps of Georgia and Florida, in North America, that five other botanists entered the lists against Mr. Ellis. Catesby called it *Lasianthus*, from *lasios*, hairy, and *anthos*, a flower; and so true did this name appear, that it has been retained for a specific designation, as above. Sweet named the genus *Polyspora*, from *polys*, many, and *spora*, seed; but finding his mistake, and being ashamed of it, he endeavoured to saddle his Polyspora on *Camellia axilaris*—a double mistake, when we consider how many seeds the Camellia furnishes from one fruit! Marshall, another writer on American plants, called it after the great Franklin, *Franklinia;* and those not interested in this contest regretted much that one of the finest genera in the wilds of North America could not be retained to commemorate the name of the son of a tallow-chandler at Boston, the projector of "Poor Richard's Almanac," of the American Republic itself, of the first public library, and first Fire Insurance Company, and the author of the brilliant discovery of the identity of the electric fluid with the lightning, and whose simple language in his publications on electricity is said by Sir H. Davy to be "as worthy of admiration as the doctrine they contained." Our countryman Salisbury called it by a name signifying "The Milky-tea:" *Lacathea*, from *lac*, milk, and *thea*, the tea plant. This name introduces the reader to the first view of the natural affinity of *Gordonia*, its real station being among the *Theads* (Ternströmiaceæ), a natural order first proposed by Mirbel of Paris in 1813, of which the Tea and the Camellia are the chief representatives in British gardens. Korthals, a foreign botanist, is the last candidate on our list, and he comes with two heavy unpronounceable names; but all were lost to more deserving competitors; and our London merchant with his London friend have won the prize legitimately by the law of priority. We have thus incidentally learned that the American *Gordonias*, *lasianthus* and *pubescens*, have their large white flowers covered with woolly down, their juice milky, and that they belong to Theads; and we may further state that their bark is used by the American tanners, that they are large handsome trees in their native swamps, and only at best but half-hardy shrubs in England. How far the Java species now represented may agree with them in these respects, we have not materials enough on hand to certify.

We make no doubt, however, but the following account of it will be of interest to those among our readers who may be looking out for our selections of such novelties as come within our province in these biographies:—It belongs to the Natural Order of *Theads*, and to 13-*Polyandria* 1-*Monogynia* of Linnæus. In the Kew Gardens it is an evergreen shrub, two feet high. *Leaves* alternate, oval but pointed, and rather paler green than those of the Camellia. *Flowers* single, from the angle between the leaf and the branch, erect, with two or three small green floral leaves or bractes, just below the *Calyx*: this is divided into five roundish oval segments, and rather hairy. *Petals*, or flower-leaves, five, reversed egg-shape, that is, with broadest end outwards, and slightly twisted. It will probably succeed in a warm greenhouse, if, as is believed, it comes from the high mountains of Java.

B. J.

THE FRUIT-GARDEN.

PINE CULTURE *(Concluded from page* 175).

APRIL.—Towards the middle of this month there will be manifest signs of a liberal growth having commenced, and in proportion to its rapidity must be the admission of air. There are those who advocate a very close course of treatment all through the spring, and this, with the old and nonsensical disrooting system, was necessary, especially with the black Pines. The case is, however, widely different with strong and healthy plants which have not needed disrooting; and hence we find the advocates of free ventilation increasing, both in numbers and earnestness—very many contending for a moderate circulation of air during the night.

With a little freedom in growth, accompanied by a free perspiration, the plants will begin to require occasional waterings; indeed, the Queen section will have required it before March was out. With regard to such as the Black Jamaica, the case is widely different; it is astonishing how long these pines will not only subsist, but thrive without water. Queens, Enville, Providences, &c., will require it thrice to their once—especially the Queens. No further *special* observations apply to this month.

MAY.—We can do little else than repeat the April directions; atmospheric moisture must continue to increase with increasing heat and light. The syringe may now be plied two or three times a week, always choosing bright afternoons for its application. The closing up, or reducing the air, must now be deferred until four o'clock P.M., and the giving of air must take place proportionately sooner; indeed, such ought to have been named in April. The plants will now be in high vigour, and an increase of ventilation at all fitting times, will keep them sturdy in proportion to their height. If they are all right at root, and plenty of atmospheric moisture can be commanded, we advise the discontinuance of shading in the end of April or beginning of May, unless the roof be of an exceedingly bright character, and the squares of glass very large. Rather let atmospheric moisture more abound, accompanied by a freer ventilation still.

JUNE.—We come now to the question of final shifting or repotting, which, of course—as far as the size and character of the fruit is concerned—ought to be ruled by the requirements of the plants; but here expediency sometimes steps in. It is a pretty well-known fact, that under a good and regular course of culture, the final shift has much influence on the period at which "the show," or rising of the fruit takes place. About seven or eight months, perhaps, may be allowed with such as the Queens, but the Black Jamaicas will be about a couple of months more. However, to advise for many contingencies, will lead us wide of our object, and we must now observe, that if those strong successions have done well, their pots will be filled with fine roots by the end of June, and shifting into the fruiting-pots will become necessary. We will, however, pass on to the next month.

JULY.—At whatever period the last shifting occurs, the same routine of potting may be observed; we have nothing new to say, except that as the size of the pot increases, so may in proportion the size of the lumps of turf, &c. A chance now occurs of renewing the plunging medium, if necessary, but much caution must be

at this period, when the solar heat produces excitement. However, we advise that a foot or tan be trenched into the bottom of the bed, tle mixed with surface tan—and this merely e durability through the ensuing winter. We ware that the tank system is superior to all that oak leaves are in the main superior to we are merely advising those who cannot reach nice things; and if their first hand is tried in arious process, they will consider a good tank a child's play, if by good luck they should fall

After a renewal of the tan, they must, however, f "burning;" they must by no means plunge ney must, moreover, watch *daily* their bottom- mometer. As before observed—if the plants watering, let it be three days before the opera- ifting.

:.—The plants will now be in the height of rth, and through the whole month we think est temperature allowed may be permitted. plants have been shifted a fortnight or so, they require the water-pot. Until the plants are to invest the new soil however, they may be st enough by copious syringings, damping surface of the tan daily. All that is further , is a most liberal ventilation from eight A.M. ; four P.M., applying all the atmospheric mois- ble the moment the house is closed, and syring- revious to closing.

BER.—The August advice will do perfectly his month, except that ventilation may even be ral still, when the weather is fine. This we put a check on too rampant growth, for in ave fine "shows," the tissue of the plant must ighly solidified, not stunted.

ER.—The light will now begin to decrease bly, and both artificial heat and atmospheric must give way in a proportionate degree. Still, persist in permitting a considerable increase of a the weather is bright. We need hardly say, burning at root. The advice applies to every ike; but it requires a double amount of watch- ; all times; for three weeks after disturbing the ig material.

BER.—The dulness of this month is proverbial, and moisture, therefore, must experience a con- decline. The tan-bed will require some re- the early part of this month, in order to go well he winter; and if the tan is mellow, or some- , let it be well watered with tepid water, and ed deeply with a pointed stake, as deep as the go. The whole may then be cased over up to, er above, the rim of the pot, providing the eat has declined sufficiently to bear it. This nust be watched, and water applied to the tan if

BER.—This and the succeeding month require milar course of practice; much fire-heat will at necessary, and all possible means must be taken ract dryness in the atmosphere. Syringing can permitted in these two months; an equivalent, must be found. Frequent syringings or gs on the surface of the tan will be good prac- once a week it may be stirred up with a stake, observed. Besides this, all floors may be kept aporating pans kept in continual requisition, the walks sprinkled, if necessary. If the weather nusually severe, rather give up five degrees on mometer than continue a roasting fire for ays. In emergencies of this kind, they will arm at 55°, but not a degree below this should ted.

ARY.—The temperature will now begin to rise htly, and a kind of resuscitation will become manifest towards the end of the month. Most cultivators who do not possess a tank-heated chamber, find it necessary to make a re-arrangement of their stock during this month, and to seize the opportunity of renewing bottom-heats, &c.; this brings us to the point from which we commenced.

Having already occupied much more space than we intended, we must be permitted to conclude with a few maxims which apply to pine culture under almost every mode, and which the amateur will do well to bear in mind; remembering, also, that no set of rules or maxims, however well concocted, will bear a servile adherence. The variations in seasons will ever give rise to various modifications. If there be one maxim of greater import than another, it is this: let heat advance with light, atmospheric moisture increase with heat, and ventilation keep pace with both.

Air Heat.—Beware of excess of night heat. Let the highest daily temperature at all seasons be during the last three hours of fair daylight.

Air Moisture.—Do not permit condensed moisture to lodge more than twenty-four hours in the axils of the leaves, during October, November, December, January, and February. An increase of heat for a few hours, with liberal ventilation, will soon disperse it.

All heating surfaces should be provided with evaporating pans, or an equivalent. It is a good plan to place a return pipe, or pipes, in a cemented trough the whole length, and by turning a tap, to cover the pipe over head with water, when necessary, which will be nearly always; sudden gushes of steam are too evanescent in character to be sufficient. Let all floors be washed down as often as possible.

Root Moisture.—If atmospheric moisture is plentiful, and syringings are had recourse to occasionally, less watering than is commonly imagined will suffice, especially with the Black Jamaica pine, which has been kept without root watering all November, December, and part of January without damage. The queen section will, however, require more than twice as much.

Ventilation.—Endeavour to give fresh air daily if only for an hour or two: and in proportion as the plants push up luxuriantly, so increase it. The huge crowns complained of are chiefly the results of imperfect ventilation.

Bottom-Heat.—The moment this declines below the prescribed temperature, let a slight addition of new tan be applied, heaping it up to the pots rims as soon as the heat permits. Let all water used in the house be at least equal to the average temperature of the period indoors. The oftener the tan is stirred up the better. Let the operator at all times beware of breaking the foliage, or of cutting away any portion still green. The pine abhors all meddling.

We may now give a list of the best kinds:—

The Queen.—A free grower and an early fruiter. This is peculiarly fitting for the earliest summer fruit, and it is excellent during September and October.

The Ripley Queen.—A variety of the old Queen. It is a very fine fruit, and by many preferred to the last.

St. Vincent, or *Green Olive.*—An excellent winter fruit.

Black Jamaica.—This tree is, perhaps, the best winter pine in the kingdom. It is too often confounded with the Montserrat.

The Black Antigua.—A noble pyramidal fruit, with large pips; should be cut a little before it is quite ripe.

Brown Sugar-loaf.—A fine pine; large and showy; with a very juicy flesh. Is said by some to swell tolerably well in winter.

The White Providence.—One of the largest and noblest of pines; flavour rather inferior.

Trinidad.—Another large pine of pyramidal shape; flavour not first-rate.

Enville.—A great favourite, being a noble looking fruit; flavour second-rate.

These comprise the best in cultivation.

FRUITS.—If a healthful course of culture is kept up, and the stock clean to begin with, a most essential point, insects will rarely appear. Mr. Hamilton strongly recommends the following recipe for the "cotton bug" and white scale:—Sulphur, 8 oz.; Scotch snuff, 8 oz.; hellebore powder, 6 oz.; nox vomica, 6 oz.; Cayenne pepper, 1 oz.; tobacco liquor, 1 quart. Add 1 gallon of boiling water, stir the mixture well, and when cool strain it through a rough cloth. The plants to be washed thoroughly all over, letting a portion run down to the bottom of the leaves. After the leaves are done, the balls must be reduced, and the roots and trunk well washed also. After the operation, the plants are set to drain, and then repotted. Mr. Hamilton adds, that this application has never been known to fail.

R. ERRINGTON.

THE FLOWER-GARDEN.

GRAVEL WALKS.—*Ille ego qui quondam*, etc., is the opening phrase of a spirited pamphlet written many years since about gardening matters, and attributed to "a good old English gentleman," now known to gardeners by the name of *Dodman;* and that phrase is applicable to the present subject, if thus paraphrased—*I am he who, some eight years ago, was put to my wits'-ends about making walks.* A summer storm once caused such a flood with us as carried down with it long stretches of the principal walk on the slopes and steep banks, and ploughed up the bottom soil into deep holes and trenches. This was the first flood of the kind I had witnessed in these gardens, and I was much alarmed at the enormous labour, to say nothing of the time and expense, necessary to put the walks into good condition again; and the more so, when some of the older hands in the garden told me that such visitations were not of unfrequent occurrence. None of them, however, could say that he had seen such destruction before. The first thing I did after replacing the walks hurriedly, was to read all that was within my reach about making walks; and that is the best course to pursue when one gets into any difficulty. Whatever we may have known about the matter before, it is only when we really want information on a given subject that we can make the best use of it when we find it. Before I attempted a reformation in the construction of walks, I had read the substance of all that was written concerning them; and I have also read the most of what has been since said about roads and walks. Perhaps some of our readers may wish to hear the authors on whom I place most reliance; and if my own account is compared with any of them, it will be found to be very different. Amongst ourselves as gardeners, or in our gardening books, there does not seem to be any one who ever thought of making a walk on the right principle; and all the modes recommended are too expensive by one half; taking the wear and tear with the weeding into the account. By far the best hints will be found in the writings of the road-makers. The most stirring account of road-making on record is by M. Thiers, where he describes the prodigious labours of Napoleon, and his engineers, in the passes of the Alps, to get his army across the Great St. Bernard. The best account of road-making is by Sir Henry Parnell, in his *Treatise on Roads;* the last edition of which, I believe, was in 1838. The works he describes were begun in 1815, under Mr. Telford and a Government Commission, on the Holyhead road. The principal features in these works suited to my present purpose, was the adoption of the old Roman way of paving the bottom of the road with large flag stones; and where the bottom was very soft, a layer of small stones was rammed in and then paved over. That, also, was a feature of the Roman practice. Mr. Telford did not fasten his flag stones with cement as the Romans did; therefore, I prefer McAdam's plan of using small rough stones for a bottom: still I would not make a yard of road or walk after either of them. McNeill's way of making the Highgate Archway road is the best account of the whole subject; but he, too, made that road at double the expense it might have been done for, and still be more strong and durable. His plan was to place a coat of Roman cement, mixed with a large quantity of the old gravel, over a firm bottom, and notching the surface of the cement before setting, so as to receive a coat of surface gravel better than if it was finished-off smooth. This was coming nearer to the Romans. It has been stated that a piece of old Roman road on the side of a hill, had the foundation washed away, and still the road remained fit to bear carriages passing over it with safety; and this, perhaps, nearly two thousand years after the road was first laid down.

One great and common error in all roads and walks, as far as I have read, is that they have been made from twice to six times too thick, and of course the expense of materials and construction is increased almost in an equal ratio. The principle on which the thickness of either walk or road should depend, is the answer to this question. How much perpendicular weight is a square foot, or a square yard, able to sustain without in the smallest degree affecting the foundation on which the materials are laid? I cannot make out that this principle has been observed by any one, and I know it was not by the Romans. We have the angle of inclination, or the line of draught, calculated to a fraction, but of perpendicular resistance it has been all guess work, and yet it is the most important point. First, ascertain this point—that is, how much your road can carry, on whatever kind of bottom, without injuring that particular bottom, and then allow ten per cent. in addition for extraordinary loads. After that, get at the easiest slope and curve, if you have to depart either from the level or out of a straight line; that is the second principle;—and the third is, the nature of the materials to make the walk or road with. Then, as a matter of course, those materials which can bear the greatest wear and tear, will be the best to use, and the cheapest in the long run.

Now, I do not think that I have erred in any of these points. I have, for the last eight years, given all the attention in my power to the subject, aided by the minds of all who studied the question before me, and I have also had proofs before my eye for the last seven years of how these points work in practice, and I am perfectly satisfied in my own mind of their importance, and of their effects. When I mentioned the subject incidentally in these pages last spring, I knew that we had nothing on the subject better than the older methods, since Sir Henry Parnell's treatise; but I thought to myself, seeing how simple the thing is, that some of our gardeners might have hit on it, and that I might be erring widely, by giving out as a novelty that which was the yearly practice of some other gardeners, although we had no account of it in print. And knowing at the same time, that almost all our first-rate gardeners read this work, I thought they would push in their plans before me in these pages, instead of which they went and played their cricket match in an adjoining meadow, and when I told them over the hedge that I did not like that way so well as my own, if I made use of any expressions they did not like in their turn, I am sorry for it, and I now retract them.

Shortly after this, or about the end of last April, I looked over some plans Mr. Barry the celebrated architect sent for adding a new entrance front to the mansion here. His first proposition was to lower the ground for

siderable way before the old entrance, and right eft of it, averaging about a yard to be cleared away, ether there was above half an acre so altered; two ›ach roads had also to be lowered, and one had to rned to a different line; in one plan three sections is ground were given to guide the men in removing arth, and each of the sections passed through the age-road. Mr. Barry could not possibly know how these roads were, but in his sections he showed eight inches in depth; some gardeners make their m-walks deeper than that; but from this "fact" I con- that if Mr. Barry were to lay out a carriage-road for elf, he would not make it deeper than eight inches, ips not so deep, seeing he would have to pay for it f his own pocket. One of the approaches is up a hill for a considerable way; the upper portion of was lowered nearly two feet, and some way down undation was made higher by nearly as much; the ›ottom being made of loose sandy soil. A new road nade over this loose bottom, not eight inches, but five inches in depth, and in three days after it was ed they began hauling huge loads of Caen stone it, from five to twelve tons a piece, and with from o ten horses, two and two a-breast, and this went r the next month, or longer, and nearly a thou- tons were at the front door by that time; and r as much this autumn has been hauled up on the road since the autumn rains fell, and damp weather on; the very best time to prove a new road five s deep. Now, with ten horses drawing twelve tons ne or feathers up a hill on a new-made road, and on sandy soil bottom, the wheels being not broad- ed, how deeply did the wheels sink in? For such ght McAdam would make a road from sixteen to y inches deep, and would have men with hammers ing the large pieces of stone which the wheels zed up from I do not know what part of his road. n truth, these narrow wheels could hardly make impression on the surface of this road, much less nto it at all; and I have seen the wheel of an r barrow leaving a deeper mark in a garden-walk these wheels leave on this road this very week. fore, I conclude, that a road five inches deep, *rly made*, will carry ten tons any day in the year, ut in the smallest degree injuring the foundation, if that foundation was damp clay, but properly ›d.

› reason I did not write about walks sooner, al- h pressed to do so by our worthy Editor, and by correspondents, was that I might see what the › of these heavy loads would be on this new road g damp or rainy weather; for I knew all along that a quantity of stones were bespoken to come over this m. The loads come up now as easily as those last although during the interval the road had a more › trial than that with the ten, or let us say five ton of stone. Whenever we had a summer thunder- , and one in particular, on the eve of St. Swithin, ›ainage from some acres of land collected into one n and passed rapidly down this road. There was ›paration made for it to drain any other way, nor here be until the works at the house shall be ed. I have seen one part of the road near the top › hill covered with a sheet of water from side to nd of some depth, in one rapid current, and yet no done to the road, or to the sides; and soon after promised to show a way of making walks on any f declivity; but before I do so, let me be under- that all I mean to say refers to carriage-drives and n-walks, in parks and pleasure grounds, and all ptions of gardens, and not to common roads. I emark of such, that Mr. Zelford had some parts of ads made stronger in the middle than at the sides. oad that I am writing about was made about four times stronger at the sides than in the middle, and our new walks, for the last half dozen years, are so made in order to resist the action of streams which must ne- cessarily run along their sides at times.

Upon a careful consideration of all kinds of land on which this style of road or walk is to be made, and allowing for the old prejudice of deep made roads, I have fixed on six inches as the maximum depth of a carriage-road on the worst kind of bottom, and four inches for that of a walk over such bottom, and from two to three inches for the best kitchen-garden walks— where, if the bottom is not good, there is always a suffi- cient inducement to make it so. It is only in a kitchen- garden that I would ever consent to a drain under or near the bed of a walk: but every walk in a kitchen- garden ought to have a drain under it, as deep as the ground in the borders or quarters is ever likely to be stirred, and as deep, besides, as any body chooses to go to the expense. These drains I would cover with bad soil to within two feet of the top if I could not get chalk to fill in instead; chalk, underdrained, being, as I believe, the kindliest bottom for the roots of all kinds of trees, and if it is in small pieces, watered and rammed as the work proceeds, no roots will penetrate through it; but it must not come in contact with the drain. A cover- ing of a few inches of clay or bad soil should intervene between the drain and the chalk, to keep it back in case it should walk into the drain and encrust it; after that, twenty inches of good soil to fill up the drain, and this should be perfectly dry when put in, and pressed down hard, so that it should not settle any afterwards. We have now four inches to fill in with the walk, one of which should first be filled with small or sifted coal- ashes, or chalk in powder; this is intended to intercept in some degree the damp from below, and to prevent the roots of trees on either side clinging to the bottom of the walk, and getting scorched in hot weather. I have suffi- cient experience to know that roots will pass freely under such a walk and get spoiled in hot summer without this precaution; and I have also proof enough that the most healthy portion of the roots will be found under such a walk after a few seasons, and when that is the case the trees need less assistance from the water-pot. In all places out of a kitchen-garden I would take as much precaution to keep dampness from the bottom of a good walk as I would do for my bed-room, by drawing away *from it*—not to it; and then the remaining three inches, I would make in such a way that no water could pass through to the bottom, but should split sideways; and, for such a walk, one inch rise in a ten feet walk, from each side, will do that. That is, in plainer words, the centre of a ten feet walk should be two inches higher than the turf on either side of it, and the half inches allowed for the thickness of the turf, will add so much to the fall from the centre of the walk, and, last of all, the walk itself is to be one body of solid concrete, made with anything except gravel that will concrete—from an oyster-shell to granite; all the particulars of which I shall explain next week.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Correa.—This is an elegant family of plants, nearly always in bloom, but flowering most profusely in winter and spring, and therefore well worthy of notice now. For this, and many more of our ornamental plants, we are indebted to Australia. It is placed in the Natural Order of Rue-worts (Rutaceæ), though, so far as mere appearance goes, it is less like a *Crowea*, an *Eriostemon*, or a *Dictamnus*, than an *Erica* or an *Andromeda*. Its corolla is tubular monopetalous, divided into four seg- ments at its point; in some of the most beautiful species

and hybrids the segments are of a different colour to the rest of the tube. In general, where the tube is of one uniform colour, or where it is short and the segments so reflexed as to resemble petals, there is less to attract attention.

Four or five have generally been recognised as species, such as *virens*, green; *alba* and *rufa*, white; *pulchella*, pinkish scarlet; and *speciosa*, crimson and green. The two latter are the prettiest, and most distinct, though they have been hybridised. There is not much difference between the whites, unless in the foliage, it being shorter and rounder in *rufa*. The foliage of *alba*, as well as the flowers, is whitish, and presents no great claim as an object of beauty; it will succeed very well against a conservative wall, and will even stand out in the border with a little protection in severe weather in winter; the leaves are used by the settlers in New Holland as a substitute for tea. Notwithstanding its rather dingy appearance it is even valuable here, as it strikes very freely, and forms a good stock for inarching or grafting the more rare and shy sorts. The *speciosa*, with its somewhat leathery leaves, loaded with flowers as above described, is still our favourite.

Whether these be distinct species or not, hybrids have been raised from them, chiefly by Messrs. Gaines and Story. Many of them are very beautiful, and, in our estimation, are pretty in proportion to the *modicum* of *speciosa* they contain: as instances, I might mention *Rubescens*, a free grower, long tubular flowers, and bright red in colour; and *Picta*, free growing, long tubular drooping flowers, crimson tipped with green. The only advantage these have over *speciosa* is their free growth; in this respect they equal, if not excel, the *Pulchella*. *Pallida*, *alba delicata*, with short tube and reflexed segments; *ferruginea*, form similar, and the names of which intimate their colour, may also be grown where there is room; and so may also such hybrids as *Harrissii longiflora*, *Grevilli*, &c., some of which, however, I have not seen.

Propagation.—This is effected by cuttings, and grafting or inarching. First—*by Cuttings*. All that I have met with may be raised by this method, but *speciosa* takes a very long time, and is very uncertain, and, therefore, it is generally grafted or inarched. The whole family, however, except *alba*, and even that requires attention, is very impatient of moisture when in the cutting pot, and yet they must not be allowed to get dry. If the common process is followed, the pot should be three parts filled with drainage, some rough material strewn over it, sandy peat and loam over that, and surmounted by at least half an inch of silver sand. The following method, however, is better, not only in the present case, but in all others of any difficulty:—Take a six or seven inch pot, and two small ones of three inches; invert one of them over the hole in the bottom of the larger pot, and on it thus inverted place the other, standing upright; its rim will be on a level, or nearly so, with the rim of the larger pot; fill up the space between these and the other pot with draining material, to within two inches of the surface, taking care that the upper layer is broken small; on this place a mere sprinkling of green moss, and then fill up to within three-quarters of an inch of the surface, with sandy peat and loam, having even that in several degrees of fineness, and, over all, place clear silver sand. Press it firm; set the pot then in a pail of water until it is thoroughly soaked, and then allow it to drain in a shady place for 24 hours. The best time for taking cuttings is, when fresh growth has been made in April and May; select stiffish but young little shoots, from an inch to an inch and a half in length, and if with a *heel* at the base all the better; cut smooth with a knife like a razor, remove a few of the lower leaves, and insert the cuttings firmly round the sides of the small pot in the centre, and so *thinly* that no part of one cutting touches the one next to it. Put a little silver sand in the holes made by the dibber, water with a fine rose, and when the cuttings are dry place a bell-glass over them, its base resting anywhere between the inner and outer pot.

But here, again, selection is necessary; and I mention it the more particularly, because the same safeguard against *damping* will be necessary in similar circumstances. Let the bell-glass taper to a point at the top, in the shape of a cone, instead of being nearly flat-headed, as they generally used to be. When I wanted such conical glasses some dozen years ago, they had to be made to order, now they are common enough. The condensed moisture, instead of, as in the flat glasses, dropping on the cuttings, will in these conical ones trickle down the sides into the sand, &c., outside of the cuttings. If, in addition, a little air is given at night—by putting a peg beneath the glass on one side—the labour and trouble of wiping glasses dry in a morning may be pretty well dispensed with. "All very well," say some of our young friends, "but, now, what is the use of the empty little pot in the centre, around which you have firmly fixed the cuttings? we guess the use of the inverted one on which it stands to be the securing of perfect drainage." Quite right, and so likewise the pot in the centre answers important purposes; though I must not enlarge, else I may receive a hint from our orderly Editor, that such matters would have been better discussed in a chapter on propagation. First, then, cuttings always strike best at the side of a pot, and with a bell-glass over them you could not well place them round the outside pot, nor yet, in the present case, round the inside of the inner one. "But why do they strike best in such circumstances?" Because the resistance thus given to the expansion of these tissues causes roots to protrude, as naturally as the wielding of the hammer strengthens the sinews in the arm of the blacksmith. In many cases, the inner pot might contain the cuttings, and the outer one be filled with drainage, earth, or moss, on which the bell-glass might stand; but then there would be no such security against *damping* as the empty pot in the centre supplies. If placed on the shelf of a greenhouse, and shaded when necessary, most of the water wanted may be given outside the bell-glass; but if, as we prefer, the pot be partly plunged in a frame or pit, where, however, there is little or no heat, except what the sun gives, then a little water at times may be poured into the pot, its ascent by evaporation stopped, by plugging the hole at the bottom with clay, when the heat will draw it up through the drainage to the base of the cuttings, and render surface waterings next to totally unnecessary; a matter of importance where delicacy of operation must be attended to.

Having said so much of these double pots for propagating, I may add, that when waterings on the surface are unadvisable, and yet a moist atmosphere requisite, the above arrangement of pots may be adopted, only the upper may be plugged at bottom and filled with water. Where bottom heat is the chief essential, a smaller pot may be inverted inside of a larger one, so that the bottom of the former is on a level, or nearly so, with the rim of the latter. If a bell-glass is used, a potsherd or a piece of clay over the hole will prevent too much heat getting into the atmosphere of the cuttings. The inside of the pot may be kept moist by pouring a little water down, and then plugging up the vent. For such purposes *porous* pots are *very* useful.

As soon as the Corræas are struck, they should be potted off singly into small pots, using equal parts loam and peat, or rather more of the latter, with silver sand to make it light, and replacing them in the pit, and keeping them close until the roots were working freely in their new quarters; reshifting again when necessary.

The more difficult kinds, such as *speciosa*, were long

inarched on the stronger growing—especially *alba*, because it was a free grower, and required little trouble in striking it.

Grafting is more generally practised, because involving much less trouble. August and April are about the best periods, though almost any period will do. A very slight hotbed is provided—not near so strong as for the orange, as mentioned the other week; free growth in the stock is thus encouraged a short time before the grafting takes place. Side grafting is generally resorted to, or a sort between grafting and budding; the chief requisites being the preserving a close moist atmosphere until the union is fairly effected, then stopping repeatedly the growth of the stock above the scion, but not cutting back to the graft until it is fairly making headway, which generally will not be the case until the following season.

The *after treatment* of plants raised from cuttings and from grafting are similar, only that those from cuttings will require more peat and open matter in their compost. For large plants, equal parts of fibry loam and peat, with another third consisting of silver sand, broken charcoal, but no dust, pieces of brick, and sand-stone will answer well, with good drainage. For those grafted on *alba*, more loam may be given. After flowering, they should be kept in the greenhouse, or, better still, in a closish pit, to encourage fresh growth; when this is accomplished, they may stand in a somewhat shady place out of doors, where they will have plenty of air, and be sheltered from drenching rains. If exposed to much sun, the pots should either be plunged with drainage below, or banked round by some non-conducting material, such as moss, &c.

The *insects* to which they are chiefly exposed, are the red spider and a white scale. Similar remedies must be applied as were mentioned last week for the orange. In vigorous growth insects seldom appear. The syringe may be used freely in spring and summer. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE BEST IN POTS (*Continued from page* 167).

CATTLEYA.—For this week's paper we have the pleasant task of describing one of the most gorgeous families of the whole tribe of orchids. The flowers are large, finely formed, and of the most beautiful colours. The bloom lasts also a considerable time, especially if they are removed into a cooler house whilst the flowers are open.

CATTLEYA BICOLOR (Two-coloured C.); Brazil.—Sepals and petals pale green, changing, as the flower fades, to a rich brown; the lip is of the richest purple imaginable. 31s. 6d.

At Pine Apple Place there is a variety with the lip broadly margined with pure white, which is a great improvement. It is also of a much dwarfer growth than the original species, which has pseudo-bulbs from 18 inches to 2 feet long, whilst the variety has not yet exceeded 1 foot in height. 63s.

C. CANDIDA (White C.); Brazil.—Sepals and petals of a delicate white, slightly shaded with pink; the lip at the base is of the same colour, with a shade of yellow in the centre and at the end. 42s.

C. CRISPA (Curled-petalled C.); Rio Janeiro.—Sepals and petals pure white; the latter are much curled at the edges; the lip is of the same colour, excepting a large blotch of deep rich purple; it is also much curled at the margin. 21s.

There is a variety with the sepals, petals, and labellum much broader and more expanded; the blotch on the lip is also broader, and of a deeper, richer colour. Messrs. Rollison, of Tooting, exhibited a plant of this variety at the Chiswick Exhibition last year; and we saw a plant of the same variety very finely bloomed in the Trinity College Gardens, near Dublin, in August last. The original species is, however, a very splendid plant; the pseudo-bulbs are about a foot long, small at the base, and much swollen upwards. The leaves stand singly upon the bulbs; they are six or seven inches long, thick and broad; the flower scape rises from the top of the pseudo-bulb in the hollow of the leaf, in a sheath, through which it soon bursts, producing four, or if very strong six, large spreading flowers. The variety has not yet produced so many flowers on a stem.

C. GRANULOSA (Rough-lipped C.); Guatimala.—Sepals and petals yellowish green, with rich brown spot; the lip is whitish, beautifully spotted with brown and crimson. The flowers are produced on tall, rather slender pseudo-bulbs, between two moderate-sized leaves. Each scape, when strong, has four or five flowers. A free grower in a cool house, which it prefers; will do well in a common stove. A desirable species, though not so splendid in colour as some other species. 21s.

C. GUTTATA (Spotted C.); Brazil.—Sepals and petals pale yellowish green, spotted thickly with dark red spots; lip white, stained with purple. A desirable, free-growing species. 21s.

C. GUTTATA, *var.* RUSSELLIANUM (Lord Edward Russell's Variety); Organ Mountain.—A much stronger variety than the species, the flowers are larger, and not so much spotted; the lip is shorter, with rose-coloured tip at the end. Very scarce. 84s.

C. HARRISONII (Mrs. Harrison's); Brazil.—The whole flower is of beautiful rose colour; the lip has a slight tinge of yellow. The stems are long and slender, bearing two leaves at the top, between which the flower-scape arises, producing frequently, when well grown, four or five beautiful flowers. We had once under our care a plant of this kind that measured 3 feet through, and produced upwards of twenty spikes of its beautiful flowers. 21s.

C. HARRISONII, *var.* VIOLACEA (Violet-coloured Variety). This is a still more beautiful variety, with flowers of a deep violet rose colour. 31s. 6d.

C. INTERMEDIA (Intermediate-sized C.); Brazil.—Sepals and petals delicate rose; lip nearly white. A very pretty species. 21s.

C. INTERMEDIA PURPUREA.—Exactly like the preceding species, excepting the lip has a large rich purple blotch towards the end, which greatly adds to its beauty. 42s.

C. LABIATA (Ruby-lipped C.); Brazil.—This superb species was imported and flowered first by the late Mr. Cattley, of Barnet, a zealous cultivator in his day of many fine plants. The genus is named after him; and never was a name more appropriately and deservedly honoured. The sepals and petals are of a delicate rose colour, and a little curled at the edges; the lip is the same colour on the outside; the inside is striped and blotched with deep carmine, and numerous stripes of deep yellow and brown; the edges are tinged with purple, and finely fringed. The flowers are very large, frequently 5 inches across; and often four in number, rarely five, on a stem. Such is a brief description of the splendid flowers of this truly magnificent plant. Dr. Lindley remarks, "It is not merely the large size of the flowers, and the deep crimson of one petal contrasted with the delicate lilac rose of the others, that constitute the loveliness of this plant: it owes its beauty, in almost an equal degree, to the transparency of its texture, and the exquisite clearness of its colours, and the graceful manner in which its broad flag-like flowers wave and intermingle when they are stirred by the air, or hang half drooping, half erect, when at rest and motionless." In addition to the above we have only to add, that the splendid flowers

appear after all the other Cattleyas are out of bloom—generally in August, or early in September. 42s.

C. LABIATA ATROPURPUREA (Dark Purple Variety); La Guayra.—This is a handsome variety, approaching, in appearance of the plant, to *Cattleya crispa*, but the flowers are those of *C. labiata*, with the sepals and petals of a paler rose, whilst the lip is nearly all over of a deep purple. 63s.

There are two more varieties of *Cattleya labiata* that have lately flowered — one is named *C. labiata picta*, and it bloomed in the orchid house of J. Blandy, Esq., of High Grove house, near Reading. The other is named *C. labiata alba*; it bloomed last summer in the stove of the Duke of Northumberland, at Syon House. Both are referred to and described at pages 108 and 109 of this present volume of THE COTTAGE GARDENER. As they are in the hands of private individuals, they cannot as yet be purchased.

C. LODDIGESII (Mr. Loddige's).—Sepals and petals of a pale rose, tinged with lilac, and thinly spotted with dark reddish spots; lip light rose outside, and inside streaked and marked with yellow. The pseudo-bulbs are like *C. Harrisonii*, but stouter and shorter. A very free flowering pretty species. 42s.

C. MOSSIÆ (Mr. Moss's); La Guayra.—It is difficult to distinguish this fine species from *C. labiata*, yet there are marks by which the practised eye can distinguish it readily. These marks have been described as, "An elongated branching stem, bearing many deeply furrowed pseudo-bulbs, bearing flowers with much broader sepals and petals, which latter are clawed at the base; the colours are more varied, and there is a difference in the markings and size of the plates of the lip." There are also, as in the case of *C. labiata*, several varieties of *C. Mossiæ*. One named *superba* is a truly splendid flower, with bright colours. We can scarcely consider, however, that *C. Mossiæ* is more than a splendid variety of *C. labiata*. 21s.

C. SKINNERII (Mr. Skinner's C.); Guatimala.—A self coloured flower of a rich rosy purple; the sepals are much narrower than those of *C. labiata*, but the petals are broader and undulated at the edges. Mr. Skinner once told me that, when wandering in the forests of Guatimala, he saw a long branch of a tree, upon which the sun was shining, completely covered with this plant, in full flower. It must have been a splendid sight. He further observes, "This plant inhabits the hot damp coasts; it is always found on very high trees, and most difficult to get at, except after a storm that may have chanced to throw down some of the largest forest-trees." He suggests further, in regard to its culture, that "it should be well watered daily, to represent the heavy dews and rains, which latter are from May to November. I should recommend, on whatever you may grow this plant, it may not imbibe too much of the extra moisture, as its habitat being on branches of high and large trees, seldom having any lichen—the heavy rains do not lay. This flower does not seek too much shade, but rather exposed places. Climate 80° to 85°, and sometimes 95°, during the day." 21s. to 42s.

Culture.—The grand difficulty is to obtain good peat for these. It should be composed chiefly of fibre, such as the roots of grasses and ferns. Break the turf into pieces with the hand, and sift out the earthy part; this earthy part will suit to mix with sand to grow ferns or heaths in. This will form the principal body of the compost. Chop some sphagnum pretty small, and sift the dust out of it, add some pieces of charcoal about the size of pigeon eggs, and some broken potsherds. This will form an open compost, through which the superabundant water during the growing season, will easily pass, which is a very important point, for

Drainage is more important in this family of plants, than in any other tribe of orchids in pots. The pots should be wider at the top than ordinary, and the drainage should fill these pots at least two-thirds, or even more would be desirable. Cover the drainage with a thin layer of moss, and place upon that the compost up to the rim of the pot, or a little higher. Then place the plant upon the compost, and fill up among the roots with it, finishing by leaving the plant upon a cone in the centre, elevated above the rim of the pot. It will be necessary then to use sticks to steady the plant. Arrange the stems or pseudo-bulbs at as equal distances as possible, so as to give room to each, and to allow the young shoots to have a full amount of air and light.

Summer Culture.—They ought in summer to have plenty of water, but so given as not to lodge in the young shoots. Remember Mr. Skinner's words above on that point. In very hot weather they will bear an occasional syringing in the morning, when the sun is likely to continue in his glory all the day. During this season the heat may be, in the day 75° without sun; with sun, 85°; then give air. In the night the heat should fall to 65° or 70°.

Winter Culture.—As soon as the annual growths are perfected, cease watering at the root entirely, and allow the heat to decline to 65° by day, and 55° by night. The air of the house should also be sensibly drier. We have often pressed the necessity of a rest for orchids, which is quite as necessary for them as for peach or apple-trees, to induce a state of fruitfulness in flowers.

T. APPLEBY.

FLORISTS' FLOWERS.

The dull foggy weather we have had lately, has had the effect of causing a considerable quantity of *mouldiness* to appear on the leaves of plants in frames and pits. There is no remedy for this but constant removal of the leaves so affected, and giving as much air and as little water as possible. These are two essential points easily applied. We have so often given direction how to give air, that we need not repeat them. Should frost suddenly come upon us again, which is more than probable, all our readers must be wide awake, especially in the evening of a fine clear day, with the thermometer falling. Cover all *Auriculas, Polyanthuses, Carnations, Cinerarias*, &c., securely from the power of frost. *Remember, one night's frost will defeat a whole year's care and attention!*

T. APPLEBY.

THE KITCHEN-GARDEN.

THE principal operations at present to be attended to in this department are, the making of new and the turning of old walks, where necessary, during open weather, putting the edgings in order, manuring and trenching as required, and the protecting of all tender things with dust, &c., as previously directed. Our remarks on drainage, too, in a former number, must not be forgotten, particularly with regard to the examination of drains placed in the vicinity of trees or hedges. We find it necessary to open some of our main drains every year, for although the bricks are laid in roman cement, and plastered inside with the same, and all the joints of the pipes are most carefully put together, yet roots will find their way through the smallest crack or crevice, and the fibres will so increase in growth, if the finest thread once penetrates, as very speedily to choke up the drain entirely.

The seed bags and drawers should now also be looked over, and if any old seed is left of any particular kinds worth growing again, date and place them by themselves. Clear out the drawers, &c., and cast away old useless seed of all kinds. Look over the memorandums made during the past season, and get the next season's

in readiness. The following list may afford some ottage gardeners and those newly beginning a ormation.

—There are many varieties, and a great same- ut many of the early kinds; one good variety is is required in a small garden, and for one com- all the good qualities of a pea the *Early Con-* 3 feet high, is the best. The Early Warwick, Albert, Dancecroft Rival, Shilling's Grotto, &c., all good, well-known peas, where variety is re- The best varieties to succeed are the Blue r, 2½ to 3 feet high; the Champion of England, ite pea, 4 to 5 feet high; the Reliance Marrow, et high; the British Queen, 6 to 7 feet high; hop's new Long-pod Dwarf; all of which are peas to succeed each other from May till er. There are many other good varieties, such auvergne, 4 to 5 feet high; the Spanish Dwarf, et high; the Banksian Blue, 2 to 3 feet high; gwood Marrow, 4 to 5 feet high; the Blue Im- 3 feet high; Blue Surprise, 4 to 5 feet high; rd Marrow, 3 feet high; Knight's Tall Marrow, et high; Knight's Dwarf Green, 3 feet high; een, 6 to 7 feet high; Mammoth Tall Green , 6 to 7 feet high; and the Dwarf Green Mar- eet high.

uart of any early variety of pea is quite suffi- sowing a row 100 feet in length; half-a-pint m in the same distance of the blue varieties; pint of the large and tall kinds are sufficient ie soil is rich, well pulverized, and pretty free gs, &c.

ans, the Early Royal Dwarf, 1½ to 2 feet high; g Pod, 3 to 4 feet high; and Johnson's Wonder, et high, are the best; and of tall kinds we nd the Windsor Broad-bean, and the Green or Nonpareil, each from 3 to 4 feet high. f any of these varieties planted as outside or ws will produce double the crop they will pro- en planted in patches, and in rows succeeding er from two to three feet apart, and the same aid of peas. We always plant or sow at great s. and get immense crops, besides the advantage rows forming partial shade and shelter for other summer crops. There are other varieties of beans, but the foregoing are all well known and proved varieties, and are enough for any garden.

French Beans.—Of these there are endless varieties. The Black Negro is a very good one; the Newington Wonder, Pale Dun, Dark Dun, Robin's Egg, and Black Speckled, are all good bearers; but of the *Runners* no variety that we have ever grown possesses so many good qualities as the old Scarlet Runner: there are the Painted Lady, the Spanish Haricot, the White Dutch, &c., all very good where plenty of ground with strength to work it is at command, and variety is required.

Brocolis.—There are a great many more fine varieties of this vegetable than there were 25 years ago. For a small garden, where only a small piece of ground can be spared for its cultivation, we recommend the Walcheren White, the Wilcove White, Malta White, Sprouting Purple, and Knight's Protecting White, with Purple and White Cape, and a good variety of cauliflower. The following are also good varieties, when obtained true:—the Brimstone or Portsmouth Dwarf, Russian Late White, Grange's Early White, Chapple's Cream, Bowle's Sulphur, Miller's Dwarf, Howden's Purple, Waterloo White, &c.

Borecoles.—The Dwarf Green Canadian, Tall Curled Egyptian, Siberian, and Buda are about the best varieties; and the Brussels Sprouts, the Sprouting-stalked Savoy, as well as the Dwarf Curled Green Savoy, are all fine varieties.

Cabbage.—Of this vegetable there is an endless variety—three or four of the best are enough for all purposes throughout the year. Atkins' Matchless is a pretty dark-green coloured variety, forming a pretty-shaped heart close to the ground, coming in quick at all seasons of planting, and early in spring, and is a beautiful colour for coleworts, greens, or any purpose. Nonpareil is also a very good pretty-sized quick-coming-in cabbage, and so is Shilling's Queen. Enfield, West Ham, and Tobolsk are good varieties, larger, and not quite so quick in coming in. There are many other very good varieties—such as the Early Hope, Battersea, Sprotbro', Vanach, Wellington, Sugar Loaf, Emperor, &c.

JAMES BARNES.

(To be continued.)

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

ST the labouring classes there is a striking feature tic life, that leads to a thousand evils, and which too strongly condemned and striven against. It ry early and complete throwing off of parental amongst the rising generation. Boys and girls affected by it; and the peace and comfort of the age must be sadly interrupted: whilst the respect- the family *is* often endangered by it. This must n want of care and firmness on the part of the vho are *commanded* to "train up a child in the way go," and whose duty it is to compel obedience from e. Many old people lament this change in the the poor, since they were children. In their days ones were brought up in strict submission to their the hours of the humble household were regular erly regarded, and there was no idle playing in the d staying out late in the evening as there is now. were at work, and the girls were kept at home r mother, at their needle, or the spinning wheel, those days was a general and useful source of n and profit.

In the present day a spirit of lawlessness manifests itself amongst the very children, over whom it is sad to see that the mother, at least, has very little power; and I often hear the poor lamenting when their children have committed some mischief, as if they had no power whatever to restrain or govern them. How earnestly ought parents, in the humble walks of life particularly, to keep their children in cheerful subjection to their authority. There is, in their class, a freedom from all restraint of custom and opinion, which governs so much the upper ranks of society, and therefore if children are not taught and broken in, to listen to, and obey their parents, there is no other check whatever to their little wilful ways; for I need not say that where parents are treated with indifference, the fear of God cannot be alive in the heart.

The one grand *want*, in this matter, is, religious instruction *at home*. Schools, however excellent, are robbed of half their benefits, by the way in which children are managed in their homes. Can we suppose for an instant, that the Scriptural lessons of the day will act upon children's minds as they ought to do when the evening conduct and conver-

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[illegible]

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:h produce from one acre as others will from this is true, what an important fact for Indeed, the same is repeatedly urged as to l the gardener, and all concerned in the oil are parties for consideration under this assertion. We are well aware that some magine they have reached the pinnacle of be very cross with us, and may possibly ving, that our keen cultivators will require

We will not go so far as to affirm that gs do not form a part of high culture; but tly remind our objectors that it so happens ake a single wheelbarrow-full of manure go as in other hands; and it may as well be added men by a greater amount of assiduity and lly make a larger manure-heap than others. leed, much room for advance—indisputably ice, then, away with cavilling, and see *what* y mixed cropping is meant the introducing en portions of an existing one, or otherwise irst crop that a second one may be introduced ilst the first is in course of culture. This ng was strongly urged, and indeed extensively e days of the potato failure. It is, however, ceeding under all circumstances, provided ell understands the habits of the respective ime necessary for them to attain maturity. ne distinction or classification of kinds be- y; for there are some kinds which will bear, joy, shade in their earlier stages, which yet ight our autumns afford, in order to perfect and give them bulk. Of such are the man- le turnip, the parsnip, &c. Some few will well in a partial shade most of the summer—) named the Drumhead cabbage, the Horn mmon turnip, the savoy, green kale, and abbage tribe, to which may be added such es, spinach, &c.

oes, they need all the light possible; still lands we have seen cases in which mixed en advantageously carried out without injury This root, however, differs so much in habit, apted to one kind is by no means so with ust be classed into early and late before to a scheme of mixed cropping. In a sub- e will point out some crops which may be bined; and in the meantime let us see if e offered peculiar to the season.

Once more let us point to this, the great stagnant soils. If any man doubt whether amp or no, let him at once put down some some water-courses. The latter process, a let him know the effect that draining will se for again adverting to it is, that this is in which such operations *ought* to be carried *may be done* in February or March, but by d time the soil will be in good order for s at the usual time; and, moreover, a good nt to put several things in his garden before

-We have before observed that too much n favour of this or deep digging, whether as bringing up fresh inorganic materials, by ater extension of root, or to provide against roughts of summer. Many people, when p of Swedes or mangold so very superior with conclude that more or richer manure se. Such is not obliged to be the case, but be traced to deeper digging or ploughing. shallow and baked soils stand completely back as it were, during a long continued those on deep dug or trenched soils quail advance. Now, it is surely easy to imagine ant loss accrues through any crop of the stationary for three or four weeks in the eason. People complain of mildew among y not know that stagnation in the system of fertile if not the only cause of this agricul-

wever, have the process of trenching rightly understood, inasmuch as some persons waste manure through the operation being ill-conducted. When a coating of manure has to be introduced in the process, it is no unusual thing to see it pared as clean into the bottom of the trench as though the operators was going to make a neat walk. This is sad work; manures do most good by being intimately mixed with the soils; the more so the better. However, since it would be rather too tedious a process to equally blend it all through the soil, the next best plan is to dig the first spit, *without* what is termed "paring," which in nine cases out of ten is merely a convenience to the operator. When the ground is to be dug two spits, the first spit manure, and all should be a *thin*, but *very deep* one. The second will of course be clear soil, and need not be so deep; six inches in general will suffice. By these means the manure is brought much more within reach of the young plant, and is, withal, more intimately mixed, especially if dug thin, and scattered abroad in the act, instead of being piled primly up in a compact body. When there is much of mere weeds, or long and coarse herbage to bury, it may be pared down in the old way; but if the surface be of field or pasture character, by all means dig it as if manured, taking a thin deep spit first, and a shallow one next.

Some persons introduce manure *between* the "spits," and it is by no means a bad plan, although it of course considerably increases the amount of labour. When the latter is no object, we should say, introduce a more decomposed kind of manure midway, such as the shovellings of the dung-hole or dung-heap.

Economical Application of Manures.—We are perfectly aware that the cottier's manure-heap is neither very capacious, nor composed of any great variety of materials, neither is it necessary it should be so. It is, however, generally composed of at least two kinds, not differing in quality, but in texture. The small holder should learn the meaning of texture; a point too much, by far, overlooked. We may observe, for the information of such, that all coarse vegetable materials, such as the refuse of recent crops, haulm, fresh weeds, or trimmings of any kind, whether from hedge, bush, or plant, in a somewhat fresh state, and not having been subjected to fermentation, is termed raw organic matter, because the organism, or, in plainer words, the structure or fabric of what was once the living vegetable, has not been broken down. Again, all dark soily-looking matter, such as generally is to be found at the bottom of old dung-heaps, or even at the bottom of an old wood-pile, is termed decomposed organic matter, the vegetable fibre having been broken down by putrescence. Our learned readers will no doubt excuse such attempts to bring the language of science within the reach of our ordinary peasantry.

Now, although quality is doubtless the first consideration, generally speaking, there are cases in which *mere raw organic matter*, before described, is of eminent service; indeed, with regard to some crops, even more so than the most highly concentrated manures. Such cases consist, in the main, of what are termed hard worn or exhausted soils: scientific men are in the habit of calling them "effete," which in plain English signifies worn out. For instance, if we had to cultivate a piece of moorland, from which all the stunted herbage, moss, fern, heath, &c., had been removed, leaving nothing but a dark moorish sort of earth, loose and incoherent, we should prefer an old heap of half-rotten weeds as compost, to grow potatoes or indeed any other crop, to a good dressing of the best Peruvian guano. And, to digress for a moment, it may be added, that this would not prove a manure of permanent stability without the marly or clayey principle; for manures, whether vegetable or animal, require a permanency of moisture, as well as a free access of air, to render them nutritive to the growing crop.

Our space is now nearly exhausted, and we must conclude with an exhortation to the cottager, to study these points well before the cropping season commences; for it is only by such things attentively considered that any positive advance can be made. The subject of mixed cropping will be handled in due time.

NATIVE WILD FLOWERS.

DECEMBER.

OFTEN is it lamented that the cold paths of the forest, in cheerless December, are unadorned by floral ornament; that the dull meadow and dreary moor are unspeckled by a single flower to relieve the wintry gloom, and point the eye of hope to that happy time when all shall smile in summer's loveliness. But we join not in such lamentations! Grateful for the joys of the season that is past (its flowers still blooming, fragrant and lovely in our heart), we need no farther earnest of coming spring, but look forward to it in sure and joyful anticipation. Indeed, the rustling leaves remind us that we too may wither ere another summer's sun has aroused the latent energies of Nature—yet, we have already shared sufficiently the enjoyment of Creation's loveliness, to call forth our earnest gratitude, and something more.

> "The time will bring on summer,
> When briers shall have leaves as well as thorns,
> And be as sweet, as sharp."

Let us only think for a moment how painfully ludicrous would be the spectacle of a gaudy winter Flora! poppies marring with their blood-like petals the purity of the driven snow; cherry blooms scattered by the wrathful tempest; hyacinths blooming amidst the desolation of leafless, songless woods; water lilies riding on the turbulent and swelling surface of the muddy mountain stream; and roses blushing on the bleak and barren hill-side! Away, such unseemly fancies, and spoil not winter's picture! plain and beautiful it is, and pregnant with teachings to mortal man.

But let us not imagine that Flora is unmindful of us, even in these ungenial days. The ordinary observer may see little or no attraction in the lanes and fields, no traces of the fair goddess' favours. But the patient naturalist, who explores the ditches and hidden nooks, finds a host of interesting beauties "lurking in their shy retreats." The "dim world of weeping mosses" are now adorned in their verdant loveliness, and afford an ample harvest to the cryptogamic botanist; and even the horticulturist sometimes finds these tiny plants sufficiently interesting to merit his careful attention in subjecting them to cultivation. As we shall have occasion to return to the mosses at a future time, when their capsules are more abundant than during the present month, we refrain, at present, from entering upon any remarks on the various species. This dull and moist season is highly favourable for transplanting the mosses from their native haunts to the greenhouse or rockery; and such of our readers as feel desirous of trying their skill at this novel department of horticulture, and who wish instructions for their guidance, we beg to refer to our papers on the subject, in the first and second volumes of *The Gardeners' Magazine of Botany*.

The botanist who is located on the sea-shore, will find sufficient to engage his attention in the treasures of the deep. If the coast is a rocky one, the numerous pools that are left by the receding tide will afford a profusion of the beautiful *Corallina officinalis* (now clearly shown to belong to the vegetable kingdom), and numerous other Algæ of equal interest. The agitation of the waters caused by a heavy gale, often uproots those species which flourish at considerable depth, and are otherwise beyond the collector's reach; and a rich harvest may thus often be gathered immediately after the subsidence of a storm. The sea-weeds are not very conspicuously important in their economical uses to man, but a number of the species have been and still are applied to various purposes. Their uses in the manufacture of kelp and iodine are sufficiently well known; and our cottage readers may, many of them, be familiar with the large *Fuci*, as affording a much-prized manure; and what is perhaps not less important, a valuable article of food for pigs. I am not aware that your southern pigs relish such food, but I can assure you that it is the chief article of diet on which many of our Scotch ones are fattened. The cottager prepares the sea-weed by pouring boiling water upon it, mixing with it at the same time a little oatmeal or bran.

Before closing my brief account of the December Flora, I should request attention to the interesting family of lichens which now adorn the old walls, rocks, and trunks of trees, chiefly in alpine districts. Of these several are important in the arts, some yielding dyes, while others are applied to medicinal purposes. The Iceland Moss (*Cetraria islandica*) and Reindeer Moss (*Cenomyce rangiferina*) are widely celebrated for their economical qualities.

G. LAWSON, F.R.P.S., F.B.S., *Edinburgh*.

THE BEE-KEEPER'S CALENDAR.—JANUARY.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide."

LITTLE attention will be required during this month of cold and frost, except upon a mild day, should such occur, of cleaning the floor boards with a dry brush, and looking well to the ventilation of boxes of all kinds; for however trifling these matters may appear to those who are inexperienced in bee management, the well-doing of many stocks, during the coming season, will in a great measure depend upon their being carefully attended to; and the interior of the hives being clean and free from damp at this time, is quite as important as their having a supply of food in store, for even with the latter, if the former be neglected, the hives frequently perish.

I am anxious that the coming season may be a favourable one for honey gathering, that the number of persons who are already providing themselves with hives, &c., intending to become bee-keepers this year, may not feel disappointment. If I may judge from the correspondence I have had from various parts of the kingdom, there will be more bee-keepers this year than in any preceding one.

GOOD SEASONS.—With all our experience, how little we know what it is that constitutes a good season. In some summers the bees in the most favoured localities, abounding in white clover, lime trees, and every thing that is calculated to afford a good supply of honey, scarcely collect enough to keep them through the winter; whereas, in the next season, perhaps, which to us appears to differ as little as possible from the former one, they are filling glass after glass, and hive after hive, with the finest honey, and this perhaps in the less favourable situations.

QUALITY OF HONEY.—It is remarkable how much honey differs in quality, even honey that is collected by the same stock of bees in the same season, a few weeks only intervening. A lady has lately sent me two samples, one from a glass taken at the end of June, and another from a glass also taken from the same stock late in August. The first is as fine as honey can be, and the other exactly the reverse. The latter appeared as if mixed with soot from its dirty appearance, which its flavour also tended to confirm; and the good lady attributed this, and in a very positive manner, to a steam engine having been erected in the immediate vicinity of her garden, between the times of her taking the first and the second glass: but which erroneous conclusion I have been enabled to remove, by having a sample of honey sent me from a village hard by, where the air is remarkably pure and free from smoke, of exactly the same colour and of the same smoky flavour.

OVER-STOCKING.—Some persons I know have an idea that it is possible to over-stock a district with bees. Perhaps it may be so; but it is not at all likely at present to be the case. Some writer tells us (I think it is Mr. Huish), that one square mile will support a hundred hives, and that there is not, or was not at the time of his writing, taking the country through, *one* hive to *ten* square miles; so that if his statement be a correct one, we need entertain no fears whatever at present of over-stocking.

Before this paper meets the eye of our readers, the sun will have entered the ascending part of the ecliptic, and the length of our days will consequently be increasing, inspiring us with the first gleam of hope and anticipation of spring; our little favourites, too, by the end of the month will be gratifying us with their pleasing hum, and we may be looking for the commencement of their labours for another year, by their attacking the aconites and early crocuses.

ARTIFICIAL STOCKS OF BEES.

I WISH to thank the "Country Curate" for correcting my errors, which were those of one who is a novice in bee-keeping, but anxious to try every available experiment, for doubt-

less there is something still to be discovered in apiarian science, as in others. My mistake arose from the following fact:—My bees were hived Sept. 3, and were fed *regularly* from about three days after that time (I could not get a proper feeder before). The weight of contents, exclusive of bees, was on the 18th of the same month, 2¼ lbs.; on the 26th, 7¾ lbs.; on the 1st of Oct., 16 lbs. They had thus increased 8¼ lbs. in five days. Naturally, I concluded that storing did not advance much till the hive was filled to a considerable extent with combs. For though I attributed the great increase at last partly to a great improvement in my feeder, which enabled the bees to appropriate nearly as much food during the last five days as they did in the first fortnight. I did not conceive they could in five days have built sufficient fresh comb to store 8¼ lbs. of food, and have stored it as well. I acknowledge the justice of the observation, that the sagacity of bees would prevent them from building comb with an uncertain prospect of getting anything to fill it; but I cannot help thinking that, in this case, when they found provisions coming in plentifully, they set vigorously to work to enlarge their storehouses, and that comb-building went on much faster than storing food. I cannot make out, by calculation, that I gave them altogether more than 28 lbs. of food, besides a little refuse honey in combs. However, I believe there was still something to be gathered from the mignonette, and the ivy blossoms afforded a small supply.

I must say, I have often felt for the poor exiled bees, working with all their might and main from morning till night, to lay in a store for winter, while the occupants of my other hives were lazily luxuriating on the produce of their summer labours, and scarcely stirring from home on the finest day. This was partly the reason why I wished to give them a hive already to some extent furnished. It seems hard to put them so late in the season into an entirely empty one. The advantage of forming artificial stocks is so great that it is important to consider the best way of effecting it. The chief advantage, in my opinion, not to mention one's own interest, is being able to provide a home for the bees, which one's unenlightened neighbours will not see that it is to their interest to preserve, and *will* burn, if some benevolent person does not interfere. Even such interference is not always effectual. I was refused some bees this autumn by a neighbouring farmer, who said, "he did not want to have any trouble wi' 'em; he should smother 'em, and have done wi' 'em;" but kindly offered me the "dead uns," if I liked to accept them. It is not always advisable, I think, to unite such preserved bees to one's own stocks, supposing these to be sufficiently strong; and the formation of an artificial swarm at once furnishes a habitation to the bees, and increases the number of stocks for the following year.

A word as to burying. I do not like *the notion* of consigning a hive of bees to the earth for four months of the year, however snug they may be in such a condition; and if they do consume two or three pounds more above ground, I am far from grudging it them. If I can protect them by shading from being tempted out in cold weather, it is all I require. Accordingly, I should not be disposed to follow the plan to any extent in my own practice—this, however, is beside the question. It is of the greatest importance that the capabilities of the plan should be fully tested; and the experiments, if successful, will not only furnish new facts in the science of bee-keeping, but will be of great practical advantage. It will often be expedient, sometimes necessary, to adopt the plan once well established. I am myself among the experimentalists.

With regard to the disputed question of *honey dew*, I have seen much of it this year, but never saw a single bee touch it, though it was much resorted to by wasps. Can any one explain the cause of the humming noise often heard in woods? I have noticed it particularly in fir-trees, and in some other trees yielding no blossom. Can it proceed from flies? or has it any connection with the gathering of honey dew?—A MOST EDIFIED READER.

OBSERVATIONS ON THE CULTURE OF BRITISH MOSSES.

WHILE so many efforts are making by horticulturists to bring to perfection their respective favourites in the floral world, there is one family or class of plants that have hitherto been almost altogether overlooked, at least as far as their cultivation is concerned. I refer to the numerous genera of Mosses, whose bright green tufts and polished capsules are now ornamenting the wall-tops, rocks, and trunks of trees, according as these localities are fitted for their growth. Though universally admired, even by those who have not made them the subject of scientific study, very little has yet been done with the view of making them inmates of our gardens; more attention, indeed, having been paid—and no doubt rightly—to eradicate such species as infest garden-walks. There are, however, many species which with a little care might easily be cultivated; and when established and well grown would form elegant and beautiful, if not strictly showy, objects for the alpine frame or greenhouse. Many, also, would do well in a Wardian case.

Having been engaged for some time in cultivating some of the most interesting of these objects, I shall now briefly narrate the modes I find most useful to secure success in growing them, hoping that some of your readers will think it worth their while to devote a little time to the same pursuit, and throw further light on the subject.

Though the mosses have much of a common character, as far as their reproductive organs are concerned, they vary much in form, texture, and the localities which they affect. Their treatment, therefore, in cultivation must necessarily vary. The strictly aquatic genera, *Fontinalis*, *Cinclidotus*, and some *Hypnums*, would succeed best where there is a constant supply of clear flowing water. *Sphagnum*, again, as its name of "Bog-moss" implies, luxuriates in peat bogs, where in process of time it accumulates to a great depth.

We pass, however, from these to such as grow on banks, wall-tops, rocks, or trees; denoting in the list at the close the habitats of such species as we think most easily found, and likely to repay the trouble of cultivation.

A mixture of clay or heavy loam, with rotten sticks, or other decaying vegetable matter, is the most suitable soil for such as *grow on banks*. The pots used should be drained till within at least two inches from the top, and a layer of thin moss on the surface of the drainage before the earth is put in. Some species of *Hypnum*, or Feather-moss—one of the most beautiful as well as widely diffused of the genera—which abound on banks, have a very trailing habit; these must be pegged-down on the surface of the pots, and if carefully watered will soon show a profusion of verdant shoots. Water should be given to them very carefully, with a fine rose; indeed, with the exception of those always found in wet spots, a sprinkling of water on the leaves when they appear to shrivel from want of moisture, will be quite sufficient. *Dicranum adiantoides*, *D. flexuosum*, *Hypnum cordifolium*, *H. dendroides*, &c., are plants that succeed best in pots constantly supplied from below with moisture.

We next proceed to those whose natural habitat is *the surface of rocks and stones*. Many species of the genera *Tortula*, *Trichostomum* and *Orthotrichum* are found only on these, and thus require little earth in the pots in which they are cultivated. A porous stone, whose surface is level with the top of the pot, is the best situation in which to put any of these mosses. In order to give solidity to them, a little loose earth may be sprinkled in the interstices between the lumps.

My experiments have not yet been directed to those that grow *on trees*, though I have little doubt that a decaying and gnarled branch of some aged monarch of the forest would form a fitting dwelling for cultivating many species, and present in a suitable place, as is often seen in a wild state, an object of much beauty. It must be remembered in making such attempts, that there are species which confine themselves to one description of tree.

In conclusion, it is only necessary to say that *care in watering* judiciously is the matter of the greatest importance in the cultivation of the Mosses. In summer they should be kept in a cool, shady place, under the shade of shrubs, or below a north wall. The back shelves of a greenhouse or a pit will give sufficient protection in winter. Besides being interesting as objects to admire, the man of science may

find it very profitable to watch the progress of the growth of these lovely objects, and the development of their fruit. It is well known, that some species which produce fruit readily in other countries never attain that state in Britain; some of these, also, are very beautiful. If by cultivation this could be achieved, it would be a subject of pleasure both to the botanist and horticulturist. They also are well adapted to add interest to a floral exhibition; and all who have seen the collection at Arniston Gardens, near Edinburgh, under the care of Mr. R. Veitch, will acknowledge that even the tufts of emerald green, surmounted by glossy fruit, are objects well deserving the attention of every admirer of nature. Subjoined is a list of such Mosses as are pretty generally distributed, and from their habit and appearance likely to make some show, and afford considerable variety. Those who have made Cryptagamic plants a subject of study, will easily be able to increase the list; to which also may be added many interesting species of the large genus *Jungermannia*, which will require, in all respects, a similar treatment.

MOSSES RECOMMENDED FOR CULTIVATION.

The abbreviations refer to the localities where they are found. b. banks, w. wall-tops, wo. woods, r. rocks, t. trees, ro. road-sides. Those distinguished by an asterisk will only succeed where a constant supply of moisture can be insured.

MUSCI (MOSSES).

BARTRAMIA, *Apple Moss*
*fontana. Moist r.
pomiformis. w.
BRYUM, *Thread Moss*
*androgynum. Moist b.
argenteum. w.
caespititium. w.
cuspidatum. wo.
hornum. wo.
ligulatum. wo.
marginatum. wo.
nutans. b.
roseum. wo.
rostratum. r.
punctatum. r.
turbinatum. b.
*ventricosum. Moist b.
DICRANUM, *Fork Moss*
adiantoides. Moist b.
bryoides. b.
cerviculatum. b.
flavescens. b.
heteromallum. wo.
*squarrosum. Moist r.
taxifolium. r.
varium. b.
DIDYMODON
capillaceum. b.
flexifolium. b.
purpureum. b. and w.
ENCALYPTA, *Extinguisher Moss*
ciliata. b.
vulgaris. w.
FUNARIA, *Cord Moss*
hygrometrica. b. and ro.
GRIMMIA
apocarpa. r.
GYMNOSTOMUM, *Beardless Moss*
*aestivum. r.
pyriforme. b.
*rupestre. r.
truncatulum. b. and ro.
HOOKERIA
lucens. wo.
HYPNUM, *Feather Moss*
denticulatum. wo.
myosuroides. t.
pulchellum. b.
undulatum, &c. wo.
NECKERA
crispa. r.
POLYTRICHUM, *Hair Moss*
aloides. b. and ro.
undulatum. b. and ro.
PTEROGONIUM
gracile. r.
TETRAPHIS
pellucida. b.
TRICHOSTOMUM, *Fringe Moss*
*aciculare. r.
heterostichum. r.
polyphyllum. w.
WEISSIA
acuta. r.
contraversa. b.
curvirostra. r. and w.
*verticillata. r.

[For this communication on the culture of the Mosses we are indebted to MR. R. M. STARK, *Seedsman, &c.*, 1, *Hope-street, Edinburgh;* and we are glad of this opportunity to name him as a party to whom any of our readers may apply with confidence for any British plants. For such a dealer we have often had inquiries; and we know that he furnishes all things necessary for Herbariums. And now one word about the Mosses before we pass to other subjects, and it shall be a lesson taught us by a child. "It is only a Moss," was our careless reply to a little girl's query relative to a sprig she had picked, and ... the prompt reply:—

"... where'er her wonders range
... fresh embroidery of her ro...
Through every season's chang...
... moment in the Eternal's ...
... myself must be.
... thought th...
...ime and eternity

...is thought shoul... ...
...u simple guise I see;
...eping beneath the whispering ... and
... the lofty ...

CULTIVATION OF THE PANSEY.

AMONG the many plants which, within the last twenty years, have more or less attracted the attention of the florists of this country, perhaps there is none that has rewarded their care and persevering diligence with more decided results, than the subject of the present remarks. From a mere weed, through the influence of cultivation, it has been raised to such a position, as to rank amongst one of the best which we find in the list of florist flowers. Indeed, so great has been the progress which in so short a period has been made in the improvement of this flower, both as respects its size, shape, and colour, that it is scarcely possible to identify it with its original ancestors. The author of these remarks has been for a long time a very successful cultivator of this flower, both for the purposes of ornament and exhibition; and within the last two years has taken ten first class prizes at the various Horticultural Exhibitions in his neighbourhood; and in detailing his system of management with them, he has been induced to undertake the task, more particularly, in order to direct the attention of THE COTTAGE GARDENER'S amateur readers to this plant, as being one well deserving their notice; for the Pansey possesses advantages over many other flowers which are more highly prized. It needs not the protection of a spacious glass erection to aid the development of its growth, nor any complicated system of heating, to make it produce its beauties. Britain is its native home, and here it thrives in perfection. For bedding, it is well adapted, as from its dwarf compact habit, the profusion of its blossoms, the variety of its hues, and the length of time it remains in flower, it is particularly suitable for planting in masses.

I will first give a list of 24 of the best varieties, selected from above one hundred kinds which I have under cultivation; arranged in three classes.

CLASS I.—SELFS.

Alpha (Busfield's); dark purple.
Cossack (Thomson's); dark maroon.
Juno; dark.
Negro (Scofield's); rich crimson chocolate, approaching black; very large.
Rainbow (Hall's); dark glossy velvet, bluish centre.
Satirist (Thomson's); bronze purple.
White sergeant (Cook's); white.
Yellow climax (Bell's); yellow.

CLASS II.

Having gold, yellow, sulphur, or straw grounds; with margins of maroon, crimson, chocolate, bronze, puce, and their intermediate shades.

Heroine (Youel's); rich yellow and bronze purple.
Lord Hardinge (Gossett's); straw and purple.
Constellation (Thomson's); straw and purple.
Julein (Major's); golden yellow and purple.
Milton (Major's); primrose ground, purple margin.
Perfection (Thomson's); yellow and rich purple.
Pliny (Thomson's); golden yellow and purple.
Supreme (Youel's); yellow and dark purple.
Zabdi (Thomson's); golden yellow and dark purple.
Cracker (O'Bryan's); yellow and bronze purple; very large.

CLASS III.

Having white grounds, with margins of purple, lilac, blue, mulberry, and their intermediate shades.

Blue fringe (Major's); white, deep blue eye, with a blue edging round all the petals; novel, but rather inclined to curl.
Aurora (Bell's); white and purple.
Duchess of Rutland (Thomson's); white and purple lilac; of weak habit.
Caroline (Turner's); white and blue mottled.
France Cycole (Grieve's); white and purple.
Lady Lacon (Bell's); white, bluish margin, fine dark eye.
Optimus (Turner's); white ground, light purple edge.

CULTIVATION.—A suitable *situation* is the chief point in its cultivation; the native situation of the wild Pansey is generally found to be in fields of growing corn, where it is partially shaded from the wind and the heat of the midday sun. To grow the Pansey for the purpose of exhibition, the situation for the plants should also be one sheltered from all cutting winds, as these are very destructive, often injuring, and even killing, the plants close to the soil, by twisting them about. The situation should be open to the free circulation of the air, and exposed to the influence of the morning sun, but protected from the full influence of the midday sun, which injures the colour of the blooms. The plants should be placed altogether in beds made for the purpose, as they can then be attended to with ease and certainty. The situation should be cool and moist, but thoroughly drained, for although the Pansey requires considerable moisture during the blooming season, and through the summer months, yet it is very impatient of superabun-

and the plants will be found never to do well
ecomes in any degree sodden.
ould be rich, and tolerably light. I prefer
iber-bed dung to any other manure, and the
ve found suit them best, is a light hazel loam,
portion of decayed turf from pasture land,
xed therewith, by frequently stirring and
three barrow-loads of this soil I add one of
bed manure two years old. I find that
particularly guano water, applied during the
m, very beneficial.
hould be carefully selected for the purpose of
ms for exhibition, as it will be always found
have flowered well through one season, they
so fine blooms the second. Those who intend
nsey for exhibition, should select young plants
d from cuttings for the purpose. For the
ons in May and June, I select plants struck
utumn, in August and September; and for the
tions in September, I select plants struck
ring; and after these have produced their
them for store plants, to produce cuttings,
a constant succession of young plants for the
ming.
tion of the Pansey is a very simple and easy
nd that the young side shoots are to be most
uttings, as the old hollow stems seldom strike
not grow so strong for spring blooming. I
ient quantity of these side shoots in August,
ig of September, and for autumn blooming in
y; these I insert either under hand-glasses,
aced in a cool-frame in some good light
d with a good quantity of silver sand, taking
em moderately moist, and shading them from

to which the Pansey is most subject, is a
suddenly, as if struck by something at the
ease has received various names, as *root-rot*,
ut both cause and remedy are unknown. I
t old plants are much more subject to it than
nd that it appears to be most prevalent during
easons. When I find a plant that is thus
s indicated by a withering of the foliage, if it
hoice kind, I immediately take all the cuttings
strike them, as I have almost invariably found
ants die. Strong stimulating manures I have
ve of this disease. As a preventive I keep the
soil frequently stirred, and out of above 500
ts during the present year, I have not lost
ee by this disease.—J. H. KNIGHT, *Florist*,

AND CHOICE CALCEOLARIAS.

—to be cultivated in pots in the greenhouse.

white ground, large dark blotch; medium size.
emon ground, numerous dark spots, thicker
margin so as to form a ring; medium size.
a—white ground, thinly covered with dark
ust growth.
; medium size.
white ground, dark spots; a fine form, with
rs.
e ground, crimson spots; medium, fine form.
k cherry-coloured ground, darker coloured
ge flowers, finest form.
t lemon ground, dark spots; medium size.
chocolate ground, streaked and marked with
ur; robust grower, large flowers.
Kent—white ground, dark maroon blotch in
; medium size, and fine form.
white ground, dark spots; fine form; an ex-
iety.
maroon ground, spotted with white; medium

yellow ground, dark spotted; medium size.
ground, dark spots; medium size.
ground, dark blotch; fine round flowers,
hape.

Parkmount Beauty—yellow ground, dark spots; fine form; a robust grower.
Portia—dark; medium size.
Resplendens—dark red, black spots; medium size; a fine variety.
Rubescens—bright cherry; medium size.
Sir H. Smith—sulphur-coloured ground, dark spots; medium size; fine form.

VARIETIES FOR BEDDING-OUT.

Chiefly of a shrubby habit.

Amplexicaulis—sulphur-colour self; free grower, and abundant flowerer; medium size.
Gem—crimson self; medium size; abundant bloomer.
Hero (Cattel's)—rich maroon; large and showy.
Kayii—bright yellow; dwarf habit; most abundant bloomer.
Kentish Hero—yellow ground, cream-coloured spot; flowering abundantly in large panicles.
Shankleyana—bronzy yellow; free flowerer; strong grower; an excellent variety.
Sultan—extra fine crimson self; fine shape.
Sulphurea splendens—bright lemon colour; free bloomer, large flower; dwarf habit.
Viscosissima—bright yellow; grows tall: suitable to plant against a low wall or paling; and answers well for a large bed, if pegged down early.
Vivid—yellow ground, bright red blotch.

T. APPLEBY.

FLOWER-BED FORMS.

By inserting "Fanny's" letter, I presume that you invite hints on the subject to which it refers? Will not all your readers point to Mr. Beaton, as the man to settle such questions?—to whom nothing is too great, or too insignificant! Still, I shall not be deterred from offering an idea or two, as I have had some slight experience—shall I say in landscape gardening? No! the word is too pompous,—seeing that I have not acted under the guidance of any professional landscape gardener, either theoretically or practically; but more from observation of nature and the dictates of my own taste,—yet my work, though of Lilliputian extent compared with the works of "the powers that be," have elicited great applause.

Knowing nothing of the sketch that "Fanny" sent you,—of the extent, shape, or diversity of surface,—whether plain or dotted with shrubs, trees, or other ornaments, I shall premise, first, that there are some shrubs or trees; consequently the turf is thrown into irregular portions, or glades, recesses, or vistas. To dot such spaces over with single beds of fanciful shapes, either at regular or irregular distances, to fill with half-hardy plants, would of course fail to please. Beds, in such cases, if single, should be of the simplest shapes; and filled with some plant that harmonises better with the scenery than do most half-hardy plants, such as roses, fuchsias, hollyhocks, yuccas, dwarf barberries, rhododendrons, heaths, azaleas, &c.; but if the half-hardy plants must be grown in such places, groups of beds may be introduced; in the centre of which may be a pillar of roses, formed by bringing three or five larch or other rough poles together at top, in form of a cone; the bed in which their bottoms are plunged will serve for planting the climbing roses in to cover the pillar; and the intervening spaces should be filled with some dwarf rose, of one sort, that will answer as a distinct colour, round which to group the half-hardy plants; or it may be a rustic basket, standing on a pedestal about two feet high, and in the centre of a small bed. The bed itself may form the centre of a group, if the space is large; but if small it may stand alone, having the basket filled with petunias, heliotrope, or other trailing plants; and the bed at the base, in which the basket stands, with pelargoniums, or what the fancy dictates. Such a bed and basket may be surrounded with a small rustic fence or edging, 12 inches high, round which may be trained some small trailers. Or again, the centre of such a group may be furnished with a neat wire basket, and covered with loasas, tropæolums, &c. Or again, it may be formed by a fine rose-tree; but if in the immediate neighbourhood of trees, raised rustic beds may be formed, which would in great measure prevent the plants being robbed by the roots of the trees. Indeed, with

materials for rustic work, a man of taste will give to a previously unadorned spot a great variety of appearance, at little cost; and almost any thing that is really rough may be worked up. Larch poles and peeled oak tops are the materials oftenest used; but there are many others seldom thought of:—Old cankered apple or thorn trees furnish good material; the knotty excrescences of old elms, the cones of the fir tribe—especially the Stone pine, hazel rods, or even the hollow trunk of a tree cut in lengths. The great fault in making rustic work is, that there is too much imitation of cabinet makers' work; or, in fact, too much nicety is observed. An old cement or tar barrel cut in two, or a few rough boards formed into a hexagonal or octagonal box, will furnish a foundation.

And now I come to the second supposition, that "Fanny's" lawn is an open space, destitute of either trees or shrubs, in which case it would be equally ridiculous to dot the surface over with beds of one particular shape or size, but would be better to lay them out with some geometrical design, on a more comprehensive scale than the plans I have given; but such a plan could only be given after some information as to size, shape, and nature of the surface.

H. H., *St. Osyth Priory.*

CINERARIA CULTURE.

It is generally admitted, that at no period of the year is the conservatory or greenhouse so gay with Flora's choicest beauties as the end of March and the whole of April, when the blaze of Indian azaleas, forced rhododendrons, roses, acacias, and other things, assisted materially by the varied tints of the plant which forms the subject of my present chapter, produce a display of bloom which taken in contrast, for the small quantity of foliage then seen, is not equalled at any other season. That Cinerarias tend very much—nay, mostly—to this unusual display, being generally acknowledged, a few words to the amateur, as to forming a selection or collection of this charming plant, may not be out of place.

There are few things thrive better, with only indifferent treatment, than do Cinerarias; avoid some two or three extreme points, and a tolerable share of success will follow. The first of these is, never to allow the least frost to touch them. The second is, to avoid the opposite extreme, by keeping them as cool as can conveniently be done, without endangering frost. By steering clear of these extremes, and attending to some other matters detailed below, the amateur or inexperienced gardener may fairly expect to succeed with this—one of the best and easiest cultivated of greenhouse plants. But in the first place let us commence with their summer culture, beginning at the time when we suppose the plants no longer worthy a place in the plant house, are turned often heedlessly out of doors. But while in the house, and when in full bloom, we would by all means advise a strict attention being paid to their respective merits, and carefully noted down, and if many of them be seedlings flowering for the first time, it is as well to put a number to it, and enter the description in a book of all such as are thought worthy of after cultivation. All inferior ones throw away at once, after the blooming is over, and as they are increased with facility, it is as well to place the criterion of merit pretty high. Probably the amateur may be loth to discard nine-tenths of his whole stock; but that is no more than what gardeners generally do, presuming, as is often the case, the bulk of them to be seedlings. Well, then, we shall say he has selected those he thinks worthy of preserving; now, in so doing, there are two objects to be considered; thus, he has a favourite seedling he wants to propagate, and would likewise wish to have seed from it too, as being likely to produce others equally good, or better; unfortunately, Cinerarias will not always ripen seed and live like herbaceous calceolarias and hollyhocks; many a good plant has been sacrificed to the anxiety of obtaining seed from it. The experienced cultivator can tell by the way in which the plant is furnished at bottom whether it is likely to live to propagate from or not; but should any doubt exist on that point, and there be a desire to perpetuate it, regardless of its seed, the best way is to cut off its bloom when in its prime—the operation seems cruel, but there is seldom any other way. Do not cut it too low—leave sufficient of foliage to enable the plant to commence a fresh growth; and, if the season will admit of it, it might be set out of doors at once. Our plan is, after having selected those intended to propagate from or furnish seed, to set them anywhere under shelter (if it be too early to turn them out of doors) and save the seed as it ripens. Those wanted to propagate from are sometimes indulged with a larger pot while in this state; but as soon as the season intimates they may be safely turned out, which is often about the first week in May, we generally turn all the plants out of their pots, and plant them in a piece of well-prepared ground, in a sheltered out-of-the-way place, planting them about a yard apart, and make the top of the ground fine and smooth. The advantages of this plan are twofold. Those plants before being pot-bound can now ramify at pleasure in a compost to their liking, while the seed in ripening requires no attention—as, falling on a well-prepared bed, it germinates speedily, and with only occasional waterings to preserve the young plants against the scorching effects of a midsummer sun, they require no other attendance. The young plants are almost sure to come up as thick as weeds; and the old ones will also throw out numerous side shoots—that is, if they live.

Previous to planting them out as above, I used to set the pots on some suitable place, for the seed to fall and grow; but I find planting out is attended with less trouble in watering, and gives the old plant a better chance to recover. It may be proper to remark, that if it be a very sunny place, it will be necessary to shade the ground with something when the seedlings are coming up, as they do not like too much sunshine; in fact, they do better under a north wall than anywhere; in such a place it is common to see them spring up in hundreds on a bed of coal-ashes, or between the stones of a pavement; and many good plants have I collected from such a place. But, as I have remarked, a bed on purpose is better for both parent and progeny; both of which we shall presume to be progressing so favourably, as entirely to cover the ground by the end of July, soon after which the potting may take place, as it is better to do so before the plants get into too gross a habit; the beginning of August is a very good time for that operation; the old plants may be taken up at the same time, and divided as much as necessary. By beginning with them thus early they get well established in their pots, and have two or three shifts before winter, and some of them are likely to flower in November; whereas, if they are left in the ground, and even standing pretty thin, they get rank; and the mutilation that invariably attends taking-up and potting, is often such as to cause most of the flower-shoots which show themselves to become, what gardeners term, blind—a misfortune also common with most of the flower-buds that are formed in the dark days,—so that we have established the rule of cutting away all such flower-stems as are not pretty near expanding their blooms by the first of November. Means must, therefore, be taken to hasten those likely to flower in autumn, otherwise to stop them altogether, as the miserable appearance they generally present in mid-winter makes it a pity sacrificing good plants for such an uncertain service; but when they can be made to bloom in autumn, which they are easily encouraged to do, nothing adds so much to the interest of the houses at that untoward season. Those showing flower-stems in September had better be only sparingly potted; and if the pot could be plunged in some warm material, with the top out, the chances of its flowering will be much increased, but the great mass of the plants are expected only to grow in autumn, and be ready to flower early in spring; repeated shifting will, therefore, be necessary; only after the first of November let those shiftings be on a sparing scale; it is better then to partially check the luxuriance of the plant, and thereby husband its resources.

Winter is fast approaching, and they cannot always be allowed the best places; therefore, when they have to endure most of the season in a cold frame, and in severe weather often covered up for several days, they ought not to be in too delicate a state on entering the immuring season. When they can have the advantage of a house or pit, heated so as to exclude frost and admit the light, they are of course better off; but the number of other plants requiring the same attention at this season, too often ousts a lot of undetermined seedling Cinerarias. Therefore, when such threatens to be their fate, they must be trained for it.

Although we have said they will endure a period of con-

nent in a cold frame, covered up proof against frost, yet by all means, advise some of the best plants being kept me more suitable place. A long continuance in dark- encourages damp and mould, which latter they do not re so well as shrubby Calceolarias, and some other s, yet, on the whole, suffer less than geraniums. Never- ss, they do suffer, and severely too at times, so that e immuring in a cold frame is unavoidable, every avail- means must be taken to give them all the light imagin- consistent with their safety. And if a dry clear day , which often does just at the setting-in of frost, let have all the air they can to make them perfectly dry; presuming the atmosphere to be absolutely frosty, they etter fitted to stand confinement when in a partially ed condition, than when excited by warmth and hu- y. Cover up immediately the air is taken away; do wait for the sun (if there be any) acting on the glass creating moisture inside. It is almost needless to say water must have been withheld for some days prior to in fact, in mid-winter, water is little required where re-heat exists. We have had Cinerarias covered up r mats, straw, and snow for three weeks, without taking serious harm; while, on the other hand, we have seen s almost destroyed in four or five days—so much de- s on the condition they are in, and other circumstances. n a change of weather admits of their being opened out, ; but be careful not to allow too rapid an ingress of air, nor yet the powerful beams of sunshine in a frosty but whenever a fine clear day does occur after they have sometime confined, let them be uncovered, and each moved so as to allow the escape of those noxious which generate disease, and their place to be sup- by a more wholesome air. It would be better if some s could be applied to drive out those baneful exhala- ; unfortunately, I know of none available without being nental to the plants inside. I should wish to invite scientific friends to give that matter their attention. nly attempt that I have made that way, and one which every one's power, is to put a few clods of unslaked into an empty flower-pot, and place that inside the ; pouring a little water over it creates a vapour not at rtful to living vegetation, but certainly inimical to the ction of that kind of fungi which we are accustomed to mould. I have frequently used that in frames or cold here bedding-out plants and other succulents are wont wintered, and think it was very serviceable. Remem- do not assert it has been proved to be so, because the ss or failure of an undertaking often arises from other s than those we are so fond to call our hobbies; but ell-known properties of lime, as being a sort of antidote dew and other parasitical fungi, gives it an importance ring a trial; but on this subject I shall, perhaps, advert future occasion. Let us, therefore, proceed with the rias, which, on a final opening-out after a thaw takes we find to be loaded with moisture, and perceive decay ne extent in the leaves and leaf-stalks of some of the luxuriant plants. These being picked off, some dry fresh from the fire-place, may be spread under them; the weather holds mild, they may be gradually inured care being taken to ensure their being dry where ity compels their being again covered up. At that a quantity of fresh dry ashes, warm from the fire-place, e of service. Anything which will counteract decay, it being detrimental to the plants, may be adopted, remembering to keep them as dry as possible.

e other gross growing plants, Cinerarias delight in a ade tolerably rich with rotten dung or decayed leaf- ; and for those shifts in which only a small portion of earth can be added, as, for instance, from a 48-pot to he soil or compost ought to be rather heavy than open, nd light; by heavy, we do not mean stiff and clayey, but y-pulverized mixture of good loam, rotten dung, and made fine enough to go in pretty solid. For the first a more open material may be used; or, when a large s given, that too may be of a more open character; here the quantity given is small, it is only reasonable r, that it ought to be in as condensed a state as pos-

Of late years, the advocates of a half-decayed vege- matter for potted plants have been both numerous all I say, clamorous. I beg pardon, if I give offence by such a vulgar expression! as it can scarcely be denied but that they are mostly right; nevertheless, there are cases in which the old-fashioned gardeners' sifted soil, beautiful to handle and look at, is of more service than the more open mixture prescribed by their junior brethren, and we think this is one of those cases. Peat earth we have also added to our mixture with advantage, only we think when much of that is used, pots of a large size are required to grow plants of equal size with those grown in rich sound loam and dung.

In common with everything else, the cooler the tempe- rature in which Cinerarias are grown in, the dwarfer and more robust their habit; therefore, when they have the advantage of fire heat let that be applied, so as to exclude frost, and give abundance of air on all favourable occasions. By a low temperature there is less danger of the green fly, which is apt to attack them; nevertheless, it is advisable to give a sharp look out for it; and whether it makes its appearance or not, it is better to fumigate them once towards the end of the season. Towards the middle of February many of them will require potting, which attend to,—and continue to do so until they show the flower-stem advanced half its length. In some respects Cinerarias differ from Geraniums: the latter stores up an amount of vegetable matter in autumn or early winter capable of developing its blooms in May, without the assistance of additional pot room. Cinerarias, on the contrary, do not form such accu- mulations, but require additional food being administered to them to the last. Certainly there are cases in which both may be said to partake of the latter character; but it is generally admitted, that to bloom Geraniums, well they must have been in their blooming pots some time; some growers even insist on their receiving their last shift before Christ- mas. Not so, however, with Cinerarias; a considerable part of their growth is to make after that time, excepting with those we have alluded to as flowering in autumn or early winter.

Having drawn these remarks to a greater length than I intended, I must hastily draw to a conclusion, trusting that the above observations may be of service to the amateur. It is unnecessary making any remark on the blooming period, as their management then requires no particular attention; and I must refer the reader back to the Editor's criterion of a good flower, in the volume for last year, as a guide on which the merits of seedlings, and in fact all others, ought to be judged by; and as they are increased with so much facility, would advise all falling much short of the points therein re- quired, to be at once thrown away. S. N. V.

FUMIGATING.

I FIND a very effectual cure for the aphis (though perhaps not safe unless performed by the master) is the fumigating the house thoroughly with tobacco smoke, and putting to two ounces of tobacco as much arsenic as would cover the tip end of a pen-knife. But the fumigating must be done from the outside, and no one allowed to go into the house for more than twelve hours, and then merely to ventilate. The great thing is not too have *too much* arsenic, which will hurt the plants.—L. R. L.

BROWN BREAD AND YEAST.

"A Parson's Wife" having lately spent some weeks in Nor- thumberland, took the opportunity of inquiring into the proportions of the mixed bread mentioned by the authoress of "My Flowers" in the September part of THE COTTAGE GARDENER. An experienced housekeeper informed her that she had habitually made the excellent bread in ques- tion, and that it was composed of *equal* parts of wheat and rye, *not* grown or ground together, but mixed by herself in the making. The same excellent servant has communicated the following receipt for making yeast, very valuable to those who live far from a brewery, and which has been for un- numbered years practised in the large establishment above alluded to, where indifferent bread is a thing unknown:—

Take a pound of flour, mix it with a pint of cold water. Boil one ounce of hops in three pints of cold water for

twenty minutes; strain the hops over the flour, and let it stand until it is new-milk warm. Then add the "onset," and set it by the fire all night, and it will be ready for use in the morning. The "onset" is a pint of the same mixture kept from the last baking; it will keep more than a week, or may be used sooner. For the first time of trying, brewer's yeast must be used instead.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

HIPPEASTRUM AULICUM (*Doctor*).—We have sent your criticism to a friend who has studied the order. He says you are right, and that *aulicum* has only two flowers on a stalk; dull red, with a greenish eye, and no particle of white about it. He also says, that *vittatum* and *reticulatum* united would produce a cross such as is described by Mr. Appleby, and none other; one called *Johnsonii* was the first of that class with white stripes. You had no need to hit so hard about the "pinnated leaves" in the same article: we all know that *Bignonias* have not their leaves in the pinnate disposition. What is meant is, that *Bignoniads* are best known to gardeners in the bold pinnate leaves of *Tecoma radicans*, on which the order was founded: another instance of the value of studying plants in natural groups and alliances, which we take so much pains to render familiar to all our readers.

CHRYSANTHEMUMS NOT FLOWERING (*W. B. M.*).—This has been rather a bad season for Chrysanthemums out of doors, especially as far north as Westmoreland, even though in a sheltered place against walls. Cut down all the flower-stems, and protect the roots with a few branches during the winter, in order that you may get them to start early and strong in the spring. Mulch them *now*. In March or April thin the shoots, so that each shall have six or eight inches to itself on the wall, nailing them neatly or fastening them as they grow. *Do not once stop them*; let each sprout grow to its full length. Give abundance of rich material and manure waterings next summer, and we think we can guarantee a mass of flowers from the points of the shoots. To keep them fine, a slight protection should be supplied by wide coping boards, or canvass, or glazed calico, to protect alike from frost and beating rains. At page 87, third volume, Mr. Fish mentions those that are best fitted for exposed places.

STOVE FOR FORWARDING PLANTS (*D. J.*).—For the sum you mention (£60) you should have a nice house. As your greenhouse is span-roofed, why not have the stove the same? but of course more heating power would be required. Whether you have a house or pit, as propagating as well as forwarding is your object, make arrangements for having a supply of bottom as well as top heat. A small boiler will do both very easily. In general circumstances, pipes for bottom heat are the cheapest, surrounding them with brick-bats, clinkers, &c., and surmounting with any plunging material. If you want a moist bottom heat, all you require is to have a few draining pipes standing upright, through which you may pour the requisite amount of water. A pit would be the cheapest every way, but then the advantages and pleasures derived from it would be at a minimum. A good wide pit, with a lean-to opaque roof at the back over a pathway, would combine the greatest convenience for the least possible expense. Settle everything before you begin.

SLOPING BANKS (*M. D.*).—The diagram of ridges you have given is the same as that which appeared in *The Gardeners' Almanack* for 1849, and is similar to that recommended by Mr. Errington the other week. Our banks, upon an average, are twelve feet apart, from the top of one bank to the top of the next; which, after allowing between two and three feet for pathways, would give about ten feet for the base of the bank. The banks run east and west. Where it is desirable that a quarter should be so ridged, the most northern should be the widest and highest. Of course, the part left for the path should be as much below the ground level, as the top of the bank is above it. The northern slope should be shorter and steeper than the south. We find the north as useful for *retarding*, as the south is for *forwarding*. In making such banks for the first time, put in stakes with a line over them in the line of the top of the bank, and trench all the ground, and form the banks as you proceed.

LAYING OUT GROUND (*Ibid*).—Your plot protected with ditch and hedge, how long not given, but thirty-six feet wide near one end, and twenty-eight feet wide at a short distance from the other end, we would either divide by taking a walk up the centre, or, as one end and side are square, we would take a two-and-a-half feet walk round them at five feet from the hedge, cross at the narrow end, leaving there a corner of twelve or eighteen feet in width, and return the walk over the other side parallel with the first, which will give you a parallelogram in the centre, which you may divide into beds as you please. On one end and side you will have uniform borders, while on the other end and side the width of the border will be variable.

POTATOES (*Ibid*).—These from grass land are scabby, and now putting forth young potatoes the size of a nut. We fear that your ri ground was too fertile for your potatoes. Did you add an whatever? You have, perhaps, *grazed* them too? If you l them in small quantities above the ground, and mixed with we do not think they would now be so growing, unless disease

ICEBERGS (*Viator*).—You say, "Can you inform me if the mode of proceeding would answer:—Drive some stakes into th leaving a space of about six inches out; on these make a flo planking, leaving a small space, say one inch, between each b cover this with the brushwood, and that again with the straw foundation raise a cone of ice; wait till the first frost succeedi then thatch with straw, and cover with leaves." If you pl under the iceberg as you propose, you need not use either bru straw; the ice will keep better on the boards, and the drains sufficient. Since our article on this subject appeared, we we plan of an ice depot at Lowestoffe, belonging to the Easter Company, having a capacity of 63 ft. 6 in. long, 40 ft. wide high, built above ground like an ordinary building, and paved On this pavement joists are laid as for common flooring, and th over the joists, with small openings between the edges. The are lined with boards. The ice put in after the usual ma drainage from between the planks goes to underground drain stone pavement, and after leaving the building it has an air which we consider objectionable. We would admit air belo pass up the walls behind the boarding, and so out at the to sufficiently high to cause a quick current. But we are promis ticulars as to how the ice keeps under present arrangements, a similar depot of old standing at Yarmouth. When ice is w Mr. Beaton's iceberg, the thatch is opened *at the bottom* an ice cut out with a spade or pick-axe, and then the thatch repl impossible to say how much ice would be required for a fam Beaton will furnish a short article to include all further de placing iced things upon table.

PLANS FOR GARDENS (*P. V.*).—How can you continue them, when we have positively declined giving them?

FORCING BULBS (*Ibid*).—Hyacinths and tulips to flower, of pits, for Christmas, should be potted by the end of A plunged in a bottom heat of 75°, with air to keep that of t 55° to 60°. By the end of October, and as the leaves and bu allow the top heat to rise to 70° or 75° by day, and ten degr night. Crocuses can be taken up from the borders at the l November, and, as above, will be in flower at the same time

BEDDING GERANIUMS (*Flora Montague*).—We regret with the exception of his highness *Ibrahim Pacha*, not geraniums are fit for a flower-bed, except, perhaps, as a They are all the best of the florists' sorts for competition, and them in a bed they will grow enormously, and produce flow there, and perhaps none for weeks. *Negress, Lady Sale, Pearl*, would do well in a mixed border, but certainly n according to the present style of being always in flower. the right kind, will do well on a light soil.

CAMPANULA CARPATICA, BLUE AND WHITE (*Ibid*).—only to be taken up in April and divided; the blue one spring will flower late in the autumn; the white one with us.

VERBENAS (*Ibid*).—Your collection is good; but as y colours, who can better mix the shades than Flora Montg We never yet could excel ladies in that branch. Keep *Ro ance* towards the back, and *Wonder of Scarlets* in the fr with the rest you cannot well err; and our word for it yo splendid show. And we should like to have a leaf out of the end of August.

FLOWER-GARDEN (*Rev. C. C. W. L.*).—Received your p answer you in the next page; like yourself, we never *fulgens* planted "effectually," neither can it be. It is one shifts.

FLOWER-GARDEN (*C. F. J.*).—For your space you have c the best of your ground. The greatest improvement o garden is capable, is to have an arch of evergreen roses at the plants to be planted within a foot of the walk, and the to beds 16 and 17; the same in front of the greenhouse, w ance of 4 and 5; this arch to be covered with the *Passi* summer climbers, as *Eccremocarpus, Lophospermum, C* or the *Running convolvolus major*; and one more arch i according to your own taste—that is, on the supposition t not be too crowded. You might first try the effect with si a couple of Canary plants; but we stake our credit on the an arch at each end would make. You did not say wha after your florist things were over.

BRUGMANSIA (*J. G.*).—To protect the roots from frost little of the damp soil on the surface; put four or five inch sifted coal-ashes, or very dry sandy peat from a shed, over t small rods round the outside of the bed, gathering them a the ribs of an umbrella, and tie them together; then fill t dry fern or broken straw, and thatch the cone so as effect off rain, and look once a month to see that no wet has reach which should be as dry as a bed-room. Of course the pla cut down to the surface.

).—Unless your cedar-tree has been prepared before this ng round the roots, you will assuredly lose it by removing time for moving cedars is now past for this season; never- ll soon explain an easy way of performing such work.

NT OF GROUND (*N. G. S.*).—You will do well to employ f the plots with potatoes. You may produce good ones two by using annually a little very old manure, and espe- , if only road-scrapings. Your gas material may assist; l always use a little ordinary manure as well. You may , &c., on No. 5., provided you do not dig to within four stems. You must get your gooseberries carefully pruned.

H. Winckworth).—The perennial plant mentioned to you ire farmer as an excellent substitute for spinach, is the *bonus Henricus*, known by the various names of Angular- ot, English Mercury or Allgood, Good Henry, Good King Vild Spinach. In many parts of Lincolnshire, as about cultivated to use as spinach; the young shoots are also and eaten as asparagus. Sow the seed in March—but in ter—in a well-manured bed, prepared as for asparagus; f September plant the seedlings, during rainy weather, in n rows, a foot apart each way. Hoe frequently, and use ops as required. Dress the beds with manure the same as they will continue in production many years.

R'S PLANTS (*J. O. H.*).—It is not improbable that ay give a series of essays on these.

STOVE PLANTS (*R. G., Jun.*)—The combination is diffi- hall have an answer next week.

SES (*N.*).—You ask, "Why when plants thrive so well in t is deemed necessary to ventilate greenhouses by opening " Only particular plants, such as *Ferns*, *Mosses*, &c., the depends upon their verdure, will *thrive* in Ward's cases. chiefly promoted by a close damp air, such as is secured case; but to obtain flowers or fruit, you must give the g them a more liberal supply of carbonic acid gas, less more exercise, which can only be secured in a green- ous ventilation.

GARDEN (*A Constant Subscriber*).—You will find what Loudon's *Villa Gardener*, a new edition of which is just *west wall*, though fully exposed to the sun, is not so good it as a south or even an east wall.

H. B.).—We cannot aid you, for no amateur can dye large . *Ink* cannot be made of galls and nutgalls only, unless he black colouring matter becomes a mud at the bottom Rain water, though saved in a cemented tank, is good for

LATS (*G. M. H.*).—There is nothing like phosphorus pills . Can you not put them in places quite out of the way The *Domestic Fowl*, by Mr. Richardson, gives the infor- re.

PLANTS (*Patria*).—1. Asplenium rutamuraria. 2. Cete- 1. 3. Polytrichum juniperinum.

UIT (*H. H.*).—Your large strawberry-like fruit is that of *gifera*. It is a native of Nepaul; and as you take *The ers' Dictionary*, you will find the particulars you require. r special direction, let us hear from you again. "The wers" of this shrub are four-leaved involucres.

(*J. S., Sleaford*).—The black mud from your drain, mixed aves, will be one of the best composts you can give to lers, or, indeed, for any crop in your garden. Your other eek.

(*A Constant Reader, Windermere*).—Thanks for the e taken. Not a cottager but will find each crop easily ere may be much in the Dictionary he does not require, wants of others.

ANT (*J. W— L.*).—All that we know concerning it is awing, at page 94 of our second volume.

GREENHOUSE (*J. Campbell*).—It did not require you to st honest man," to learn that if you intend to employ buy new bricks, that you cannot build a greenhouse for ney." Any one who has a mechanical turn like J. B., ect the greenhouse *himself*, buying second-hand bricks, putty, &c., can do what J. B. *has done*. If you cannot can only suppose that you have not the same opportu-

s (*Snowdrop*).—15, wants a white edging; *Sweet Alys- ivy-leaved geranium* would do. 1 should be exchanged pe, being of no decided colour, would then agree with lours in the ends of the 5 beds falling towards 1; but d across, the *Heliotrope* would overrun its bounds in the rbena of the same colour always heightens the effect of a ; we use *Duchess d'Aumale*. 6, white, should be in 4, two distinct colours would be on each side of the centre, er across 4 towards 15 your colours are, as it were, white is always a safe foreground for a scarlet. A white would not mar this effect, as the dark green ivy below it en the two shades. As you did not put the aspect, or , we cannot well say how 9 corresponded with 6, or 13 less there was a particular reason for it, neither a *White Petunia* or *Lilac Verbena* should stand in that relation to the plant as 2 and 9; if you adopt our suggestion with the centre group, exchange 7 with 9, and 13 with 11. In any future arrangement of plants, we would adhere to that way of disposing of the colours. It is not so much the kinds of plants that are used, as the disposition of the colours that heightens the effect of a flower-garden like yours, where the different groups of beds come so near into each other.

STANDARD ROSES (*Ibid*).—Prune those newly planted next February, and fork in some rotten manure any time during the winter or spring when you dress the borders; and liquid-manure may be given to all sorts of hardy roses any month in the year.

FLOWER-GARDEN (*Subscriber*).—Your garden is very pretty indeed, and very suitable for that situation; and more so if 6 could be planted like 5 with flowers; but without knowing what flowers you have already, or how disposed, we cannot be of much use to you. We would plant 4 with nothing but *dwarf perpetual roses*, and only with six sorts, which you can see in many of our pages, and repeat them till the bed is full. 11 we should plant all with *Dahlias*. 10 we cannot decide, unless it were a mixed collection of such things as *Penstemons*, *Phloxes*, and *Salvias*. 7 and 8 should have scarlet and yellow, and 9 white. 5, blue, or three colours, the middle one a white; but all is only a rough guess, we have no guide from you.

VASES (*P.*).—Besides the trailers, vases ought to be filled with *Geraniums*, *Calceolarias*, or a mixed assortment, as in flower-beds, and the plants to trail and train down and around plants at the sides. In a sheltered situation, many of the summer climbers answer well. The *Canary plant*, varieties of *Convolvolus major*, dark-flowered or spotted common *Nasturtium*, *Rhodochiton volubile*, and *Lophospermum*; the latter with the larger leaves picked off once in three weeks or so; all these fill up fast, but must be tied in or regularly trained. *Petunias*, also, do well that way. *Moneywort* is the best one to hang down naturally, but does not last long in bloom.

FLOWER-GARDEN (*Rev. C. W. L.*).—Your details are well arranged for consideration, but one plan with a duplicate list would have been enough. Here we have a plan of the flower-garden and front of the house, with a list of the plants of 1850 and of those proposed to be used next summer, with a few banks for us to fill up, besides an opinion on the contemplated arrangement—all on one page. How well some can put their ideas on paper in small compass. 1. Why not try dark blue or scarlet *Convolvolus major*, with the *Canary plant* round the basket; then mixed *Verbenas*, with an edging of *Eucuridium grandiflorum*, or *Sphenogyne speciosa*, close round the sides till the Verbenas spread. 2. Not by any means; the mixture outside will not do. Sow a row of *Silene pendula*, nine inches from the side, about the middle of April, and clip it a little on both sides, for a regular hedge, and it will bloom as long as the Heliotrope. 3. Plant a broad band of *Lobelia ramosa*, from April sown seeds, round it when the turbans come off. 4. Bad edging last year; sow two rows a foot apart, and nine inches from edge, of *Tagetes tenuifolia*, and keep a free space in the centre all the season. 5. Very good. 6. Only some annual, to come off in August. The present crop will cover by that time. We would sow *mignonette* over the whole surface, and let the *Fuchsias* run over it. 7 and 8. Very good. Sow *Viscaria* 1st of April and first and last week in May. The rest seem very good.

FLOWER-GARDEN (*J. H. N.*).—You made the best of your ground, and you ought to have a fine display. We would not, on any account, plant 1 as you propose; it is the key bed. *Yellow Calceolarias* in the middle of it, or *Lobelia ramosa*, or a mixture of lightish *Verbenas*, or *Heliotropes*. 10, 11, 12, and 13 are the beds for what you propose for No. 1, and what you propose for them we would have in 14 and 15. You are quite right about 16 and 17, but 16 was outrageous last year, and 17 so and so. Quite right about 6, 7, 8, 9; but get dwarf sorts. The rest as you say. Except 16 and 17, all the outside beds ought to have your tallest plants, and lower them as you approach the centre. 11 and 12 should have the same kind of plant, or the same colour; so also with 10 and 13.

GLADIOLUS (*C. H. C.*).—Plant your *Gladiolus* next February. *Felicite Perpetuelle* is as good as any of the evergreen pillar or climbing roses; but there are five or six others not much behind it, which we have often described. *William Jesse* rose will answer well as a half standard. South-west is not a bad *aspect for bees*.

CALENDAR FOR JANUARY.

ORCHID HOUSE.

AIR. In this first month of the year we frequently have severe frosty nights and clear, bright, sunny days. The heat necessary to keep out the frost, and the bright sun, will raise the temperature of the house too high; to lower it to the right pitch air must be given, and the apertures to give air ought to be so placed that the cold air does not rush in directly upon or through the plants. BLOCKS: plants on these will require attention; any that are loose should be refastened; cleanse the leaves and pseudo-bulbs from green scurf and all kinds of insects. CYRTOPODIUMS, see to; if any fresh growth is observable, repot in a rich compost. DENDROBIUMS, remove into a cool house; such as show growth may be potted and kept moderately moist. HEAT: keep both the houses to the lowest point of heat for the first half of the month; as the days lengthen allow the heat to increase a few degrees. INSECTS, continue to destroy. MOISTURE: on sunny days sprinkle the walks, walls, and pipes two or three times a-day. POTTING, continue to perform upon all orchids beginning to grow. SOBRALIAS, place in a cool house; heat, 55° by day

and 50° by night; cut down all the shoots that flowered the preceding summer, to allow room for the young shoots; keep them quite dry while at rest. SYRINGE blocks as directed last month. WATER at the roots, apply carefully; do not wet the young shoots. T. APPLEBY.

PLANT STOVE.

See last month. POT a second batch of *Achimenes*, *Gesneras*, and *Gloxinias*, to succeed those done last month. Give moderate supplies of *water* till they begin to grow. The *heat* of this house must still be kept low, as too much excitement will, for want of light, cause the plants to grow weak, and the young leaves to come yellow. T. APPLEBY.

FLORISTS' FLOWERS.

AIR. Whenever the sun overcomes the frost draw off the lights, it will refresh the plants much; if kept on the plants will begin to grow, and will be more liable to suffer from close covering during severe weather. In dull, humid, mild weather, give air at the back or sides by tilting up the lights. As the frost in this month is often very severe apply COVERINGS of sufficient thickness to keep it out; light open material, such as fern or straw, with a single mat over it to prevent it blowing about, is better than a covering of three mats laid close upon each other. Use hoops and mats over the *tulip* and *hyacinth beds* in severe frosty or heavy rainy weather. PINKS: after the frost is gone press the soil to with the hand firmly, or they will be thrown quite out of the ground. RANUNCULUSES may be planted, weather permitting, the last week in the month (see former number of THE COTTAGE GARDENER as to the manner). WATER: give none in frosty weather, but as soon as a change takes place apply it early in the morning of a fine day. T. APPLEBY.

FLOWER-GARDEN.

ANNUALS in borders keep free from fallen leaves or other litter; and, if the weather is fine, sow a few more at the end of the month. BULBS, see that mice or rats do not get to them: fresh soot keeps them off for awhile. CUTTINGS of various hardy deciduous shrubs, climbing roses, and the like, may yet be put in. EDGINGS, see that they are in good order; slate edgings are the best, then box: either may be laid this month. If the soil is dry at the end of the month plant some GLADIOLI, such as *Psittacinus*, and continue in monthly succession to the end of April. Forget not to procure such *stakes*, *rods*, *pegs*, and *tallies* as may be wanted next summer, in time. Destroy *rats*, *mice*, and other creatures destructive to seeds and roots. Again look at the protected plants to see they are dry. GRASS, keep it clean and well rolled. HEDGES, evergreen and otherwise, may be yet planted and dressed. LAYERS of evergreens or deciduous shrubs may be made as the borders are cleaned. MANURE, in composts, apply to such flower-beds as may require assistance; and in a solid, rotten state to all roses. MULCH all newly-planted trees, &c. POTTED PLANTS in reserve-garden secure from frosts. PLANTING, push forward in mild weather. PRUNE and regulate every tree or bush which requires it: be more sparing with evergreens. RANUNCULUSES, if the soil is dry, plant a lot for another succession. ROSES, prune, plant, and dung, if not already done: and wash them with strong lime and soot paint, to kill moss and insects. SEEDLINGS and all young plants protect according to their hardihood and strength. SUCKERS, pull up and destroy, unless wanted for increase, as those of some roses, &c. TRENCH vacant ground. WALKS, roll as soon as they are dry after rains or frost, and keep them regularly cleaned. WEEDS, destroy everywhere. WHEELING, reserve for frosty or very dry weather. D. BEATON.

ORCHARD.

ALMONDS, plant. APPLES (espalier) prune, &c.; plant, &c. APRICOTS, plant; prune and train in frosty weather. BRINE, apply with a scrubbing-brush to stems and branches of fruit-trees, to destroy insects, eggs, and moss. CHERRIES (wall and espalier), prune and train; plant. CHESNUTS, plant. CURRANTS, prune; plant. CUTTINGS of gooseberries, &c., may be planted. DRAINAGE, attend to. ESPALIERS, prune and regulate. FIGS, plant; protect from frost. FILBERTS, plant. FORK the surface around fruit-trees. GOOSEBERRIES, plant; prune. LAYERS, plant. LEAVES, collect for various uses. MEDLARS, plant. MULBERRIES, plant. MULCH, put around newly-planted trees. NECTARINES, plant; prune and train in frosty weather. PEACHES (see nectarine). PEARS, plant; (espalier), prune, &c. PLUMS, plant; (wall and espalier), prune. PRUNING, attend to generally. QUINCES, plant. RASPBERRIES, plant; prune and dress. SERVICES, plant. SNAILS, destroy in their torpid state. STAKE and support trees newly planted. STANDARDS, remove dead and irregular branches from. SUCKERS, plant. STRAWBERRIES, top-dress and protect. TRENCH and prepare borders, &c., for planting. VINES, plant, prune, and train. WALL-TREES generally, prune and regulate. WALLS: it is a very beneficial plan to paint these by means of a whitewasher's brush, with a liquid mixture of lime, soot, and sulphur—1 lb. soot, 2 lb. sulphur, and 2 lb. lime. It destroys and banishes insects, as well as by its dark colour promoting the warmth of the wall. The liquid employed, in which to mix the above, should be urine and soapsuds—in equal proportions.

Any trees proposed to be regrafted in the spring may be *headed down* now in open weather, but the stumps of the branches should be left sufficiently long to permit a few inches more to be cut off at the time of grafting. R. ERRINGTON.

FORCING-HOUSE.

AIR, admit, as often as circumstances permit. APRICOTS (see peach). BARK-BEDS, stir, and renew, if heat declines. CHERRIES (see peach). CUCUMBERS, in pots, introduce; sprinkle frequently over head, but rather sparingly at the roots, and train. CURRANTS, water when necessary. FIGS (see vines): they should be in pots in the vinery—if set in pans all the better. GOOSEBERRIES, water frequently. KIDNEY-BEANS, sow in small pots—about seven-inch; increase the size of the pots as the days lengthen; use now light and rich soil; water frequently. LIGHT, admit as freely as possible. MUSHROOM-BEDS, carefully protect; in house, use much air moisture. PROTECT glass in very severe weather, even in the daytime, but under such circumstances do not keep up a high artificial heat, let it be several degrees lower than in favourable weather. NECTARINES and PEACHES, in blossom keep at about 55° during the day, and at night about 40°; water very sparingly; shake branches gently to distribute the pollen; stir earth around often. PINE APPLE (fruiting) may require increased bottom-heat to about 75° to 80°; water if really requisite—if plunged, and the floor damped, they need but little; temperature in houses from 60° to 65°. STOVE, temperature, not above 60° in the day, and at night 40°. STRAWBERRIES, in pots, introduce; when blossoming, water frequently, and ventilate freely; day temperature not more than 60°. THERMOMETER, watch its dictates out of doors, and regulate your fire occasionally. VINES, in leaf, keep about 60°; in blossom, about 70° during the day if the weather be light—at night 50° to 60°; protect stems outside by haybands, and the roots by fermenting matters. WASH the leaves of all plants, as requisite, either with a sponge or by watering. WATER, soft, and warm as the house, apply as requisite; in pots, &c., keep constantly in the house.

R. ERRINGTON.

GREENHOUSE.

AIR, admit at every favourable opportunity, whenever the temperature outside is above 35°, except in windy or foggy weather, especially among heaths, epacrises, and azaleas, that you do not wish to bloom early. Soft-wooded plants should be kept at one end of the house. BULBS and hardy SHRUBS, such as lilacs, azaleas, and roses, introduce from the forcing house, placing them at the closest and warmest end of the house; calceolarias, cinerarias, geraniums, and Chinese primroses, clean, shift, and supply at times with manure-water. CLIMBERS, prune in, if not already done, those that produce their flowers on the young wood; others, such as Kennedyas, now flowering and growing, attend to, and especially train, every day, the tropæolums, if you wish to prevent confusion. FIRE, light in close, dull weather, to enable you to give a circulation of air. Beware of heating too much when frosty, as, without due precaution, the atmosphere will be too dry; it is better to use coverings for the glass. SUCCULENTS, unless growing and showing flower, refrain from watering. WATER other plants only when requisite, and perform the operation after breakfast, using water rather higher than the medium temperature of the house. Place a few achimenes, gesnera, and gloxinia-roots, into heat for early blooming. In a conservatory or greenhouse, where no hard-wooded plants to speak of are grown, and where a medium heat of 50° can be maintained, Poinsettia pulcherrima, Euphorbi, and Jacquiniflora, &c., may be introduced from the stove. R. FISH.

KITCHEN-GARDEN.

ARTICHOKES, attend to, shelter, &c. ASPARAGUS, plant in hotbed; attend to that forcing; temperature about 65°, and at night 50°. BEANS, plant, b.; earth up early; protect from frost; plant in hotbed. BEET (red) plant for seed. BROCOLI, protect from frost. CABBAGES, plant, e.; sow, e.; plant for seed. CARDOONS, attend to, shelter, &c. CARROTS, sow small crop; plant for seed; (early Horn) sow on gentle hotbeds, fill the frame up well with earth, so as to bring the crop up close to the glass; attend to early thinning out and earth-stirring with a little pointed stick among all frame crops. CAULIFLOWERS in frames, attend to protection from frost, and give all open air possible in open weather; also hand-glass crops, clear away all decayed leaves and slugs, and earth-stir often; if young plants are required a pinch of seed may be sown in pans, and placed in any heated structure, but have a gentle hotbed made up ready to prick them out upon, keeping the young crop up close to the glass. CELERY, earth up, shelter, &c. COMPOSTS, prepare and turn over. CUCUMBERS, sow and prick out; temperature, by day 70° to 75°, and at night 65°. DUNG, for hotbeds, prepare; wheel on to vacant ground. EARTH for hotbeds, prepare. EARTH-UP and fasten plants disturbed by frost, &c. ENDIVE, blanch, protect. FROST, protect plants from by temporary covering. GROUND, trench vacant. HORSE-RADISH, plant, e. HOTBEDS, make and attend to. JERUSALEM ARTICHOKES, plant, e. KALE (Sea), force, b. KIDNEY BEANS, sow in hotbed, e. LETTUCES, in frames, attend; protect from frost; sow on warm border, e. LIQUORICE, plant, e., and dig up three-year old. MELONS, sow, for fruiting in May; day temperature 75°, night 65°. MINT, force, in hotbed. MUSHROOM BEDS, make, and attend to those producing; procure horse-droppings for. MUSTARD and CRESS, sow in hotbed. ONIONS, clear from weeds; examine stored; sow a small crop, e.; plant for seed. PARSLEY, sow, e.; protect from frost. PARSNIPS, plant for seed. PEAS, sow; earth up; shelter from frost; plant in hotbed; and prepare sticks. This is a good season for making main sowings of early and second early peas where the soil works well and the weather is open. POTATOES, plant in slight hotbed; and they may also be planted out in the open border, or quarters, in fine open weather, where the soil works well. Examine those in the store. RADISHES, sow in hotbed; thin out as soon as the plants can be handled, and sift a little dry earth among them; sow in border, e. RAPE (for salading), sow in hotbed; (edible-rooted), sow. RHUBARB, attend to; force, either in pots, to be placed in some heated structure, or covered up with pots or tubs and fermenting materials. SALADING (Small), sow. SAVOYS, plant for seed. SPINACH, clean and sow, e. TANSY, plant in hotbed. TARRAGON, plant in hotbed. TURNIPS, plant for seed; should the weather seem inclined to set in severe, store in a good supply, or heap them and cover them over with coal-ashes. WEEDS, continually destroy, and do any work which will lessen that of the following busier months. WOODLICE, destroy in the mushroom-house by trapping under dry hay, and scalding it in hot water; or by baiting small pots with boiled potatoes, or slices of potatoes under dry moss.

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WEEKLY CALENDAR.

JANUARY 2—8, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Shelless Snail (Slug) appears.	30.223—30.221	39—27	N.W.	—	9 a. 8	1v	sets.	◔	4 12	2
Wild Pansy flowers.	30.201—29.996	44—38	N.W.	0.02	8	1	5a.11	1	4 40	3
Hepatica flowers.	29.737—29.445	48—26	S.W.	—	8	2	6 10	2	5 8	4
2 Sunday after Christmas.	29.437—29.427	42—21	W.	—	8	3	7 13	3	5 35	5
Epiphany. Twelfth Day.	29.599—29.426	35—18	E.	—	8	5	8 17	4	6 2	6
	30.154—29.867	36—14	N.	—	7	6	9 21	5	6 28	7
Furze flowers.	30.330—30.232	36—31	N.E.	—	7	7	10 26	6	6 54	8

the church of St. Giles, Cripplegate, and in the same tomb with his er, are contained all that remains of Dr. William Bulleyn, who, inscription informs us, was famous for his learning and piety, and was ever as ready to devote his skill and medicines to the healing of oor as of the rich. He was a divine as well as a physician—a union ofessions then not at all unusual, and continuing to be so united as late as 1780, in which year died Dr. Gower, a physician practising elmsford, and who at the same time performed the clerical duties of eighbouring village of Chignall. Dr. Bulleyn was born in the Isle y, early in the reign of Henry VIII.; and it is not improbable that is a kinsman of Queen Anne Boleyn, or Bulleyn, for thus is her spelt in many records of those days of uncertain orthography. her, his relatives were scattered over the eastern counties of England; like her, he was a zealous Protestant. He appears to have been a ber of both our English Universities, and to have travelled far and in Germany, Scotland, and England—studying their natural pro- ons with a zeal and success marking him very prominently as a man ience in that age, benighted as it was in everything appertaining to ral History. In 1550 he was appointed to the Rectory of Blaxhall, folk; but being an unflinching opponent of the leading doctrines e Papal Church, he resigned his preferment soon after the accession ueen Mary in 1553. Soon after he settled in practice as a physician rham, and became a co-proprietor with Sir Thomas Hilton in salt s near Tynemouth Castle; and even after the disease of Sir Thomas lls us. "in the north there is salt made at the shiles by Tinmouth e. I Bullein, the author hereof, have a pan of salt upon the same ." But Sir Thomas had been his chief patron, so the doctor ved to London, was elected a member of the College of Physicians 0, and soon became known as a skilful practitioner. Yet his day of erity was soon overclouded, and a series of misfortunes visited him would have overwhelmed an ordinary man, but which were the ion, as in the case of John Bunyan, of our possessing those pub- ons from which we shall conclude by making a few extracts. The e of those misfortunes cannot be better sketched than by his own as follows:—

"To the friendly reader William Bulleyn sendeth salutation. Foras- , good reader, as four years last past (this was written in 1562) I ised in a book of mine, called *The Government of Health* (which I ated to a knight of great worship in the north—Sir Thomas, the n of Hilton), to set forth another book of healthful medicines; even r the space of one year after the same, I travailed to perform my ise made, and so finished my copy, which copy did perish by ship- , and so my labour was lost. And not only my labour but also my ndangered by sundry malicious and devilish inventions, by and gh one William Hilton, in nature brother to the foresaid Baron of n, but in conditions nothing like at all, for he wanted his gentleness good nature. Now, after that God had delivered me from the great of this man—that is to say, conspiring of my guiltless death and ess life towards him and his (on a charge of murdering Sir Thomas), n this man attempted another new displeasure against me for debt. ring his malice by a pretence of law. By which action, finally, I imprisoned, methought a long time (for there be but few guests that pleasure in such inns). Now, being thus in prison, methought I ot only convenient time but also a quiet conscience to travail in ring my late book, or lost copy, which indeed I am not able to finish. prevented by so many troubles and lets of my said enemy, whose s at large I commit to silence, least I should seem to write a story gredy, or else a description of his folly in the place of Physick." learn from other sources that Sir Thomas Hilton had died of a gnant fever, and that having left a portion of his property to Dr. yn was the cause of his brother's persecution, who not only charged octor with the murder of Sir Thomas, but, failing in this, hired ns to assassinate him. In this he also failed; but we have seen that s more successful in his suit for an imaginary debt. How long Dr. yn remained in prison we have been unable to discover, but we have fear that he died within its walls; for that event occurred on the 7th nuary, 1576; and in the collected edition of his works, dated 1579, commendatory verses prefixed state—

"It was at first but roughly hewen out,
Himself that time in prison fast detained;
No marvel, then, though scapes and faults did sprout,
Since he the while from liberty was wained:
Yet his good will, his skill, and love unfeigned,
He kept not back, but offered it to all,
In hope thereby to pleasure great and small."

is book is entitled. *A Bulwark of Defence against all Sickness, ness, and Wounds that do assault Mankind; which Bulwark is with Hillarius the Gardener, Health the Physician, with their urgeon to help the wounded soldiers, &c.* The work is full of the mation afforded by Greek and Roman authors relative to most cal and culinary plants, but it contains also much which gives us an ht into the horticultural knowledge of the time during which Dr. yn lived; nor is this the only ground on which is founded his title to ice in our pages. At that period it was usual to despise the produce ir English gardens; and there is good reason for believing that our eners then betrayed an ignominious inferiority when compared with of Flanders. Sugar was eaten as sauce with every kind of flesh , yet not because vegetables were little esteemed; for Catherine, the Queen of Henry VIII., was accustomed to send a messenger to Holland, or Flanders, when she required a salad. If our gardeners had grown good fruits and vegetables there was a demand for them; but they were inferior to those grown by our foreign neighbours; and as wealth knew no obstacle to indulging in these it became a fashion to have them upon table, and the gardeners of London submitted to be importers of these edibles. The readiest and usual excuse for the national inferiority of our garden produce was to assert that our climate and soil were unfavourable to its growth. Against this unfounded excuse Dr. Bulleyn stood forward the patriotic opponent. Speaking of *the Cabbage*, he says, "This is good to make pottage withall, and is a profitable herb in a commonwealth, which the Flemings sell dear; but we have it growing in our own gardens, if we would prefer our own commodity before idleness, and not suffer weeds to grow where herbs should be planted." There are other passages of similar purport, and these aiding the suggestions of private interest soon caused our horticulture to be more attended to, and with its improvement the importation of salads ceased. Henry VIII. set an example which others followed—he sent his gardener, who was a French priest, named Woolf, to travel on the continent for the express purpose of acquiring a better knowledge of the gardening art.

Dr. Bulleyn's work gives us some other glimpses of his contemporary horticulture. Of *Hops* he thus speaks—"Clean brewed beer, if it be not very strong, brewed with good Hops is very wholesome. It is an usual or common drink in most places of England, which indeed is hurt and made worse with many hops dried like dust, which cometh from beyond sea; yet it is known that the goodly fields and fruitful grounds of England do bring forth for man's use as good hops as do grow in any place of the world, as by proof I know in many places of the county of Suffolk, where they brew their beer with the hops that grow upon their own grounds, as in a place called Brisiard, near to an old famous castle called Framlingham." Of *Pears* he says, "There is a kind growing in the city of Norwich, called the Black Friars' Pear, very delicious and pleasant, and no less profitable unto a hot stomach, as I heard it reported by a right worshipful physician of the same city, called Doctor Maufield, who said he thought that those pears, without all comparison, were the best that grew in any place of England." Of *Apples* and their produce he was no great admirer—"They be of many kinds," he says, "as Costards, the Green Coat, the Pippin, the Queen Apple, and so forth. There is a windy drink made of them called Cider!" In speaking of *Rushes*, he gives us this incidental notice of the customs of his time:—"Of rushes growing in running streams there be great plenty round about the Isle of Ely, my native country, whereof the plain people make mats and horse-collars of the greater rushes, and of the smaller they make lights or candles for the winter. Rushes that grow upon dry ground be good to strew in halls, chambers, and galleries, to walk upon, defending apparel, as trains of gowns and kirtles, from dust. Rushes be old courtiers, and when they be nothing worth then they be cast out of doors—so be many that do tread upon them." We have often failed in discerning why the *Houseleek* should be so named, but the Doctor's spelling unravels the mystery. It is a corruption of *Houslike*, evidently in reference to its fondness for the roof of a house, or other structure, as its place of growth. The whole passage is worth extracting, and with it we must conclude our notice of this good sterling old Englishman. "It is called Houselike and Seengreen in the south parts of England, but in the north it is called Full. In Latin it is *Sedum*, or *Semper virum*—that is, evermore living and never dying; therefore the old writers call it *Joris barba*, Jupiter's Beard, and hold an opinion superstitiously, that in what house soever it groweth no lightning nor tempest can take place to do any harm there."

Meteorology of the Week.—At Chiswick, from observations made during the last twenty-four years, it appears that there the average highest and lowest temperatures of this week are 40.7° and 30.2°, respectively. The greatest heat observed, 54°, was on the 6th in the year 1845; and the lowest cold, 6°, was on the 7th in 1811. During the period rain fell on 61 days, and 107 were fine.

Insects.—The larva of the Bright-line-brown-eye, or Pot-herb Moth (*Mamestra oleracea*), may be now found, or rather early in December, beneath the surface of the earth, undergoing its transformations. This caterpillar is one of the most destructive of our garden enemies, feeding on cabbages, but more especially broccoli, lettuces, and some other garden produce during the autumn. It is of a livid yellowish-brown colour, darkly striped on the back and sides, and with a white stripe nearly over the feet, which are light brown. It has black dots between the dark stripes. When young, and sometimes even when fully grown, it has a green ground colour. The moth comes forth in the summer. It measures one and a half inch across the fore-wings, which are nearly of a uniform chesnut colour, but slightly clouded, and with a whitish irregular line near the outer edge, with an orange-coloured kidney-shaped spot near it, and a roundish dark spot near the centre. The under wings are dusky white, with the veins and a crescent-shaped spot in the centre all dusky.

RETURNING to the consideration of the food obtained by a plant from the soil by the agency of its roots, we find that silica, or the pure substance of flint, is present in all soils; is soluble in water, requiring one thousand times its weight of this liquid to dissolve it (*Kirwan's Mineralogy*, vol. i. p. 10); is found in many plants, and in all the grasses that have been analysed. Alumina, or the basis of clay, present in all soils, is so soluble in water as to be inseparable by the filter, and is much more so when any of the acids are present (*Sennebier's Physiology. Veget.* vol. iii. p. 18); it is found in plants in minute quantities, especially in the grain of barley, oats, wheat, &c. (*Schræder*, in *Gehlen's Journ.* vol. iii. p. 525.) Lime is found in almost all soils; it is easily soluble in water, and there is but one plant that is not known to contain some of it as a constituent, the *Salsola Soda*. (*Ann. de Chimie*, vol. xviii. p. 76.) Magnesia, generally present in soils, is soluble in water, and is found in many plants. Iron is present in all soils, in all natural waters, and in all plants. Manganese is found in some soils, is soluble in water containing acids, &c., and is found in a few plants. But none of those substances in a state of purity, either simply or combined, have ever been found capable of perfecting a plant through all its stages of growth, when moistened only with distilled water; the contrary is the case, however, when the water contains in solution vegetable or animal matters, as the dung of animals. Now these matters contain carbon, hydrogen, oxygen, nitrogen, and various salts: the three first are absolutely necessary for the existence of all plants, every part of which is chiefly composed of them; nitrogen is found in most plants; and the importance of salts to vegetation is demonstrated by the facts, that clover will not flourish where there is no sulphate of lime; that nettles follow the footsteps of man for the nitrate of potass, which always abounds near the walls of his habitation, and that marine plants linger for the common salt of their native haunts. Salts of some kind or other are found in every species of plant, but none of which the constituents have not also been detected in soils. During decay, vegetable and animal matters also exhale various gases. Carbonic acid, hydrogen, carburetted hydrogen, ammonia, &c., are of the number, all of which have been applied to the roots of plants with great benefit by Sir H. Davy and others.

Although plants will not grow upon soils composed of the earths only, yet these have a great influence over plants, not merely by their secondary powers of regulating the amount of moisture, heat, &c., but by entering directly into the constitution of the plant; for it is a result of experience, to which we know of no exception, that a plant contains more of any given earth, if grown in a soil where it predominates, than if grown in a soil where it is in less abundance. This fact was first pointed out by Saussure, who found that the *Rhododendron ferrugineum*, when growing on the calcareous formation of Mount Jura, contained in its ashes 43.25 per cent. of carbonate of lime, but only 0.75 of silica. On the other hand, the ashes of the same plant, from the granitic district of Mount Brevere, contained 2.0 per cent. of silica, but only 16.75 of carbonate of lime.

However varying in the proportions, yet every soil is composed of silica, alumina, lime, magnesia, oxide of iron, salts, and animal and vegetable remains. The most important consideration is, what proportions those are which constitute a fertile soil.

The *beau ideal* of a fertile soil is one which contains such a proportion of decomposing matter and of moisture, as to keep the crop growing upon it always supplied with food in a state fit for its consumption, yet not so superabundantly as to render the plants too luxuriant, if the object in view is the production of flowers or seed: but, for the production of those plants whose foliage is the part in request, as spinach, or of edible bulbous roots, as onions, which have a small expanse of leaves, so as to be almost entirely dependent upon the soil for nourishment, there can scarcely be an excess of decomposed matter presented to their roots. Spinach, on rich soils, will yield successive cuttings the same as asparagus: the latter, especially, demands abundant applications of nourishment to its roots; since, like the onion, it has little foliage and slightly fibrous roots, at the same time that it has to afford repeated cuttings; and thus, requiring a repeated development of parts, needs abundant food in its immediate neighbourhood.

A soil with a just proportion of decomposing matter, will be capable of absorbing moisture during the droughts of summer from the atmosphere, for the most fertile soils are always the most absorbent, yet it must not be too retentive of moisture, which is the case in such soils as contain too much alumina; neither must it too easily part with moisture, a fault which is a characteristic of those soils which contain an excess of silica. A subsoil of gravel mixed with clay is the best, if not abounding in oxide of iron, for clay alone retains the moisture on the arable surface in too great an excess; and sand, or chalk, on the contrary carries it away too rapidly. It is, however, evident, that to insure these good qualities in any soil, at all seasons, is impossible; and it is as manifest that a soil that would do so in one climate would fail in another, if the mean annual temperature of them should differ, as well as the amount in inches of rain which fall during the same period. Since, in the western parts of England, more than twice as much rain occurs as in the most eastern counties, or in the proportion of 42 to 19, a soil in the east of England, for any given crop, may be richer and more tenacious than the soil required for it on the western coast.

Alumina, or clay, imparts tenacity to a soil when applied; silica, or sand, diminishes that power; whilst chalk and lime have an intermediate effect. They render heavy soils more friable, and light soils more retentive. These simple facts are important; two neighbouring gardens, by an interchange of soils, being often rendered fertile, which, before, were in the extremes of heaviness and lightness.

From these statements it is evident, that no universal standard, or recipe, can be given for the formation of a fertile soil; but a soil, the constituents of which approach

:tions to those of the following, cannot be in any climate. It is a rich alluvial soil, .clair, in his invaluable *Hortus Gramineus* gives as being the most fertile for the

, 115; aluminous stones, 70; carbonate of mposing animal and vegetable matter, 31; umina, 28; oxide of iron, 13; sulphate of e, vegetable, and saline matter, 7; loss, 8;

:eady stated what forms it a fertile soil; it l, that, to constitute it eminently such, arthy particles must be in a minute state n the above analysis, 185 parts only were sifting through a fine searce, 215 parts ole; whereas poorer soils will often have se matter to every 100 of finely pulverized

NEW PLANTS.

IR PORTRAITS AND BIOGRAPHIES.

-FLOWERED HOYA (*Hoya campanulata*).—*agazine*, t. 4545.—The genus Hoya was own, some eight and forty years ago, in :. Hoy, F.L.S., then gardener to his Grace Northumberland, at Sion House; and *cam-* ell-shaped, alludes to the conformation of this species, which was first exhibited two s ago by the spirited firm of Veitch and er. We have seen the new Hoyas, such as *ulata*, and *imperialis*, which the younger Borneo, and, notwithstanding all that Mr. said respecting their different merits when ited, we must give the palm of preference plant on which the genus was founded—*Hoya carnosa*—"the honey plant" of our boyish days; and those who have seen it treated as in the days of yore, we are much inclined to think, will be of our opinion. The *Hoya carnosa*, with its thick ivory-like flowers, from each of which a dew-drop of the purest nectar—said to be the wine of the heathen gods—hung of a morning, would look down on the subject of our present biography with that kind of feeling which "The Authoress of My Flowers" so touchingly dwelt upon the other day, with respect to the unsuitable flimsy dresses of the present day as compared with the red cloaks and hoods of the last century; and well it may! The flowers of this *Hoya campanulata* partake much of the thin flimsiness aforesaid, without the gaudiness of colour which, in our day, country girls consider the main evidence of genteel dress. These flowers are neither snow-white, nor milk-white, nor paper-white, nor even whitish. Yet, after all, the plant has great merit in the sweetness of the flowers. As to the flowers of the *Hoya imperialis*, when we last saw them they were too elevated for us to go so near them as to find out whether they were perfumed or otherwise, and we forget if Mr. Appleby said anything on this head.

We should be very much at home if Mr. A. B., or F., or, indeed, any of our weekly instructors, were to give a chapter on the old Hoya and its garden varieties—if they are really so, *Pottsii* and *trinervis*, as, before we can give a final verdict, we should much like to see them and the *Imperialis* grown side by side under similar circumstances.

The *Hoya campanulata* is a stove twiner, found wild in the mountain copses of Java. *Leaves*, rather leathery, longish oval, and pointed. *Flowers* on slender drooping stalk, and in a globe-form bunch, like the Gueldre rose; calyx, five segmented; corolla, above an inch and a quarter in diameter, slightly waxy, more like a broad shallow cup than a bell, buff coloured, and its edge cut into five broad lobes, with a point in the centre. They are best seen when the plant is trained along a rafter. It is propagated like *Hoya bella*, as described at p. 50 of the present volume.

The Natural Order of which the Hoya is a member is *Asclepidiads*, the characteristics of which is that the pollen bags or anthers are, with the stigmata, glued into a consolidated mass. The nearest alliance to it of which gardeners have much knowledge is Ceropegia, a dingy-flowered climber, belonging to what are called succulents. *Hoya* belongs to 5-*Pentandria* 2-*Digynia* of Linnæus.

PRINCE DE SALM'S OPUNTIA (*Opuntia Salmiana*).—*Botanical Magazine*, t. 4542.—This Indian fig is named in compliment to His Highness Prince Salm-Dyck, a celebrated German grower of succulent plants, and author of a large work with coloured plates on the Cape Ficoids, Mesembryaceæ, Dyckia—a little aloe-like plant, and his commemorative genus. *Opuntia* is a name of doubtful origin, but given by Tournefort, and probably on the old supposition that an Indian fig was Theophrastus's Opuntia, a view not now entertained by modern botanists, who will have all known species of this large order of succulent plants to be natives of the new world. Cactaceæ, or *Cactus-worts*, is the name of the Natural Order to which they belong, and to 12-*Icosandria* 1-*Monogynia* of Linnæus. Curiously enough, the researches of modern science have brought to light

that these plants, often in the form of mere masses of soft vegetable matter armed with a formidable array of close

set spines, are in immediate affinity with the gooseberry and currant, and that the fruit of the Indian figs are as refreshing as that of either. Opuntias, generally, are not favourites with gardeners, and yet there are many of the dwarf species peculiarly suited for those who have little time to watch the requirements of more delicate races. The common Indian fig, *Opuntia vulgaris*, like the houseleek, will live for months on the tiles of a house if a foot-holding is provided for it, and without any waterings. We have known specimens of it outliving several winters in such airy places both in England and in Ireland. One peculiarity in the growth of the Opuntias is their extending in successive joints, the connecting parts being often not larger than the stalk of an apple, while the flat pieces between these joints extend to several inches, with the broadest end often uppermost. Yet, in the course of time, this is changed in the stronger species into straight stems as circular and firm as the handle of a garden rake. In short, wood for fuel is obtained from Opuntia as well as from the lofty columnar Cereuses.

The great value of Opuntia is in the production of the cochineal insect, which is reared on the soft parts of *Opuntia cochenillifera*, called nopal in South America, and the dried insect, cochinilla by the Spaniards, who had a monopoly in the cochineal trade before the revolt of the Spanish American provinces. Since that revolt this trade has taken a more natural course from the producing plantations, or from neighbouring ports, as that from Mexico and the Spanish Main through the British West Indian Colonies. The cochineal insect furnishes an extremely rich red colouring matter, long used in scarlet dyeing, and in the manufacture of carmine, one of the chemical components of cochineal being now called carminium—a solid matter, of a perfect red colour, very soluble in water. "If gelatinous alumina be added to a solution of carminium these two substances combine, the solution is completely decolourised. The compound thus obtained is of a fine red colour, and is called *Lake*; but it may be rendered crimson by heating it in the liquor in which it is formed." The red or crimson of the cochineal is rendered scarlet by what the dyers call "tin spirits," that is, muriate or chloride of tin. In appearance the cochineal insect looks much like the white woolly substance known to gardeners by the name of American blight, or woolly insect, so destructive to their apple-trees. The female insect only is collected, and the difference in the different kinds of the cochineal of commerce arises from the different methods employed to kill and dry the insects. Adulterations are made by mixing old insects, consisting of mere skins, with a fresh and genuine sample.

Opuntia Salmiana is believed to be a native of Brazil, and came into the Kew collection from the Prince de Salm's gardens at Herenhaussen. It is a stove plant, not more than two feet high. *Branches*, upright, cylindrical, ashy-green, blunt at the end; *areoles*, or little woolly patches, are arranged in quincunx order over the branches, with six or eight small prickles issuing from each. *Flowers*, about two inches across, clustered at the top of a branch, sulphur coloured, streaked with red and pink in the centre. It is easily propagated from seed, cuttings, and "by buds produced on each areole of the fruit, which ultimately form separate and distinct plants." B. J.

THE FRUIT-GARDEN.

VINES IN POTS.—We may now commence with the propagation itself, by means of eyes, which is the established mode, and approved by all, as probably approaching nearer to the seedling state than any other; and as information is frequently sought on this head by amateurs who attend to their own gardens, we must give our advice in regular detail. Well ripened wood from healthy established vines is the best, and that with very large joints, removed with a small portion of the two-year-old wood, grows the strongest. About one inch of the shoot above, and one below the bud, will suffice; the cutting will thus be two inches in length. Some persons cut the shoot through longitudinally, reserving three-fourths of the wood on the bud side, and most of the pith; we, however, never found any decided advantage in the practice. Single eyes may now be put in pots about four to five inches in diameter;—soil, a rich and mellow loam, or any good garden soil. Care must be taken to secure excellent drainage; and the eye must be placed an inch at least below the surface of the soil. And, now, a bottom-heat, although by no means indispensable, will be of immense service; it will, indeed, rear them in half the time otherwise required. From 70° to 80° will be proper; and if they can be secured an atmospheric warmth of 50° to 60°, they will soon produce shoots. If they are plunged, means must be taken to prevent the worms getting into the pots; three inches of coal-ashes beneath the pots will ensure this. After potting they will want little attention until they have made shoots above the soil; a little water will be requisite occasionally. In a month they will be nice plants of about six or eight inches in height, and their pots will be full of roots; and those who wish to obtain large plants, must give them a "shift," and such may be a final one for the season. Seven or eight-inch pots will now be necessary, and a more generous soil still. Nothing can exceed an old turf which has lain in the compost-yard for a twelvemonth, with one-third its bulk of old leaf soil, and good manure, adding a little sand and charcoal to the mixture, which must not be fine; thorough drainage as before. They should again receive bottom warmth until the pots are nearly filled with roots; and if the eyes were started in the beginning of February, such will be the case about Midsummer, when, if necessary, the pots may be removed from the plunging medium; caution, however, must be exercised

in doing so. We would advise in this event that the vines be double potted, that is, the pot with the plant sunk into another, after the manner of tender Ericas, &c.; and if they are placed over a source of heat—as pipes or flues—all the better. It must be understood that there is no absolute necessity for taking them out of the plunging medium; we merely recommend it in order to get them as near to the light as possible—this being an all-important affair.

The stem must be carefully trained up stakes, or otherwise so as to expose all possible foliage to the sun, and the lateral shoots all stopped at one joint from the main stem. Some persons now stop the main shoot when about six feet in length, but we would only recommend such in case of necessity; for we will suppose that another year's culture is necessary, in order to obtain a good crop. Thus, regular training and stopping, and liberal waterings when requisite, with tepid liquid manure, with a complete exposure to light, constitute the remaining culture of the season.

By October the leaves will be all fallen, and the plants may be instantly pruned back to about nine inches in length, when they may be plunged in any sheltered and dry spot for the winter; laying the pots on one side to keep out the rain, and throwing some litter over them in severe weather to keep out frost. In the course of January, in the succeeding year, they may be again introduced to heat, as before, and must receive the *final* shift; the size of the pot must be in part dictated by the position they are to occupy: a pot, however, at least a foot in diameter must be used. And now, again, the most perfect drainage must be employed; and both it and the lumpy turfy material must increase in the size of their component parts, in a just ratio to the increase of pot-room.

It is needless to go over cultural matters again, a similar course to that of the preceding year must be followed, only they will require more liberal waterings still, when the new pots are full of roots. When the buds commence growth, a selection must be made of the eyes or shoots to be reserved; and here practices differ: some retain four or five shoots, others only one or two. These points must be ruled principally by the position they are to occupy. We may merely observe, that most good cultivators reserve only one cane; and this is trained carefully, as in the preceding season, and is usually stopped at about six feet in length. This throws extra strength for a while into the principal leaves, and through them into the fruit buds at their base. The stopped shoot will shortly push another leader, and this may be permitted to produce another foot or so of shoot, when it will be well to practise a second stopping. All this while the laterals are regularly stopped, as in the first year's culture.

In August or September they will sink to rest, and may be pruned immediately; the length left to bear must be entirely determined by the size of the pots. About three feet, or nearly so, may be left to a 12-inch pot; and about four or five feet, if in 15-inch pots: regard must, however, be had to the space overhead, as to height, &c. They must now again be plunged for their rest period; and the best place is a shed or outhouse facing the north, taking care to protect well the roots.

If required to be forced early, they may be introduced to heat soon after Christmas; and now a bottom-heat of 75° will be of great service, if only for a couple of months. They will require no repotting. A little of the powdery surface soil may be removed from the top of the balls, and replaced by a rich and turfy top-dressing. It is good practice at first introduction to heat, to form the cane into a curve, in order to make it develope the buds with more equality. As soon as the young shoots show the bunch, a selection must be made; three shoots with bunches will be plenty for a 12-inch pot, allowing one more bunch to every inch of increase of size in the pot. Thus a 15-inch pot would carry six bunches, one on each shoot. Not a shoot must be left on but those carrying bunches. All the subsequent management as to stopping, &c., is precisely as for vines in houses; each shoot is stopped at a single eye or two beyond the bunch just before the bunch blossoms; and through the summer the stopping must be continued, suffering a leader on each shoot to ramble a little occasionally, especially whilst the stoning process is going on, when they may be suffered to acquire a liberal extension of foliage. As soon, however, as the last swelling commences, a somewhat close stopping may again take place, and henceforth new growths must be kept in check; such would only rob the system of the plant; for all now becomes concentration and elaboration. Throughout the whole process, as great a surface of foliage must be presented to the light as possible; and the smaller leaves of laterals must not be permitted to shade the principal leaves.

We will now add a few maxims of the greatest importance in the way of recapitulation.

ROOT MANAGEMENT.—Water moderately at root when emerging from a state of rest, increasing the amount progressively as the amount of foliage increases. As soon as the berries are nearly ripe, decrease the amount slightly until the fruit is all cut, using clear water during that period. When the fruit is removed, if the leaves are green, again resume occasional waterings of liquid manure.

SOIL.—Let three parts the volume of soil be chopped turf nearly twelvemonths old.

POTTING.—Let one-sixth of the depth of the pot be drainage of imperishable materials; such as coarse boiled bones, charcoal, and crocks; covering the whole with fibrous turf from which most of the soil has been shaken.

BOTTOM-HEAT.—Whether a plunging medium can be obtained or not, so place the pots as that the chief volume of the roots are a few degrees warmer than the average temperature of the house; and screen the pots from the immediate action of the sun. Pans, with water in them occasionally, may be resorted to with benefit by cautious practitioners.

TOP-DRESSING.—Towards the middle of May, it may prove a benefit to apply three inches of rich half-rotten manure on the surface of the pots.

REST STATE.—Let the roots become nearly dry before the pots are plunged for the winter.

ATMOSPHERIC MANAGEMENT.—Keep the atmosphere very moist whilst the vines are budding, somewhat drier whilst blossoming, and, again, a liberal amount of air moisture whilst the first swelling is proceeding; and cease to use appliances of the kind from the moment the last swelling for ripening commences.

SYRINGING is a great enemy to a fine bloom; a good cultivator will dispense with it altogether, except perhaps at the "breaking" period.

STEAMING.—Have nothing to do with so dangerous a procedure; rather moisten floors and other surfaces, if necessary.

VENTILATION.—The more of this the better, provided draughts can be avoided, and the necessary heat maintained; above all, be sure to give air early in the morning, if only a very little—say towards eight o'clock a.m. during January and February; and as early as six o'clock during the warmer months. The bottom warmth should always be a little in advance of the average air heat; if a plunging medium is resorted to, let 80° be the maximum. As to atmospheric heat, let it be ever ruled by the light. Commence with a day-heat of 55° through the breaking period, advance gradually to 60° until the vines are in bloom, then rise to 75°; and henceforth let this be your maximum point by *artificial* heat. Night heat 45°

at commencement, rising to 55° by the time the vines are in blossom; afterwards do not exceed 60°. On very dull days, and during severe weather, descend to the night heat during the day. Whatever sudden advances in heat are made over 70°, let it be for two or three hours after closing time p.m., and mostly by means of solar heat. It may on such occasions safely rise to 85°.

KINDS.—We think the Black Hamburgh is the most general favourite; some, however, succeed well with the Muscat of Alexandria. The Muscadines answer very well; and we have seen very good Frontignans in pots.

INSECTS.—As soon as pruned their stems may be dressed thoroughly with the following mixture:—Dissolve two ounces of soft soap in a gallon of warm water; add three handsful of sulphur, and about a quart or three pints of lime. Stir the whole well while using it.

We conclude with one more wholesome piece of advice. Never suffer the air of the house to be charged with atmospheric moisture when the sun is shining. Vines will scald sooner at 75° thus situated than at 90° with a dry air. R. ERRINGTON.

THE FLOWER-GARDEN.

GARDEN WALKS.—I have said that garden walks may be made of any thing but gravel, which will bind, or concrete,—from oyster-shells to granite; and now I add, that they may be made also with gravel alone, concreted without any of these substances; but roads for very heavy weights are best, if they are constructed without gravel; or with only just enough of it to make the body bind, as mortar is used for building a house. Here, where we have abundance of good gravel on both sides of the house and garden, and within less than half a mile off, they did not use a particle of fresh gravel in making the approach road, which I instanced as having had to undergo the severest trial that any road could be put to, as soon as it was finished. The old road was broken up, the gravel turned right and left, then sifted; the stones and the roughest portions of the gravel, that is, particles from the size of a marrow pea upwards, retained to make the new road with; and the small gravel, such as one would use for the top of a garden walk, was carted away to fill inequalities about the ground, except perhaps a tenth part to form the concrete for binding the road.

This is the oldest kind of road we have on record,—so that what I have said, or am going to say, on the subject is almost as old as the hills, or at any rate a great deal older than Romulus himself, who is said, in our school-books, to have been the founder of Rome. And the Roman writers do not disguise the fact, that they borrowed their gardening and agriculture, their irrigation, their vineyards, or orchards—and may I not add their road-making and their garden walk-making?—from the Carthaginians; and who can prove that the streets of Carthage were not made on the self-same plan as this very road that I am writing about? At any rate the Romans introduced concrete road-making into England; and where they could not get large stone flags to cement together for a roadway, they made the road entirely of small stones, sand, and lime, but of such thickness as would now ruin us. The only novelty, therefore, that will be found in my plan is the small quantity of materials that are necessary to make as good a road as ever was done in the luxurious suburbs of either Carthage or Rome. Six inches in depth, on a soft clay bottom, can be made to carry loads of five tons' weight in narrow-wheeled carts, waggons, or trucks; and over a very dry gravelly or porous dry earth, such as one would choose to build a house on. A road only four inches in thickness will carry the same weight, if properly put together.

The question, therefore, is narrowed to this—which is the best materials for wear and tear, or to stand against the friction of the wheels and the tread of horses? The Romans used basalt stones for making their roads, in places where they must have carried them from a long distance, and where they could procure stones hard enough, to all appearance, on the spot; and those of us who are not thus particular, may use any hard stones which we can procure cheapest,—from the sea shore, or river side, from a gravel pit, or from the farmer who gathers them in the spring from his grass lands,—and, in nine cases out of ten, this kind of mixed stones is the best of all for forming a road with; and such were the kinds of stones used for the road which I have introduced, not as a model, but to explain the way I would have all roads and walks within parks and pleasure grounds constructed.

I have said that a large quantity of soil had to be removed in front of the mansion, hundreds of loads of which were spread about on the grass in the park, and on both sides of the new road, or rather the old road, for it was not touched then. After the rains washed down this earth there was a large quantity of stones left, from the size of an ostrich's egg—or as large as my two fists put together—down to the size of a robin's egg. A lot of little boys soon collected these into heaps, and that, with the stone sifted from the old gravel bed of the road, made the new road, and some hundred yards of another road besides. The binding material was chalk, except for eighteen inches on each side of the road, the sides being put together with chalk lime, so that, as I said last week, the sides were made stronger than the centre, in order to resist the strong currents of rain water which must pass right down the road until the building and alterations about the house were finished, when drains and drainage would come to be considered. This piece of road is in the most difficult part of the park to form a road, and the road itself was an experiment from first to last; and the original intention was to lay on an inch of concreted gravel after all the rough traffic was over, or say after twelve months; but I believe that idea of making the road six inches thick is now abandoned, and that it will stand at five inches; and be kept well *painted*, as our men call gravelling the surface of our walks. We first make the walks of concrete, and keep them coloured with gravel, as people keep their door and window frames coloured with paint; sometimes a door or a window frame goes two or three years without painting, and it is just so with these walks; only, for the look of the thing, we colour our walks here annually at the end of spring. Like paint, which if laid on wood out in the sun too thick blisters, so with gravelling these walks: we can only just cover them, and this coat we call the eighth of an inch, so it must be fine; and, like a coat of paint, it ought to have the old coat removed first from below it. The only difference between painting on wood and painting with gravel is this, that oil painters choose a dry surface for their coats, and we with the gravel damp the surface, if it happens to be very dry at the time we wish to put the gravel on.

The best walks in the flower-garden here have only one-fourth of an inch of clean gravel on the top; and some of them, after being in use for six years, are now as good as the first day they were made; and, if it were needed, any length of them could be made, by this way of colouring, to look as if the walk was only made the week before. Where gravel is very dear, I would never use more of it in making a road or walk than one inch, and I could do in either case with half that thickness; that is, if I could get a cheaper article to bind together into a solid body. I can see no objection to any of the materials that have been in use, or recommended, for making the bottom, or body, of walks with, except *bricbats on a wet bottom*. On a dry bottom they will pass muster, if nothing better can be had; but I do not think that a good walk, at least a cheap walk, can be made

over a bottom of brick-bats lying on a bed of clay; because, drain how you would, the bricks will suck up moisture, and keep the bottom of the walk damp; and damp bottom is inimical to this kind of walk altogether.

One more turn, and we shall begin the concrete; and that is, that this new way of making walks, after the Roman fashion, does away with one branch of gardening—but where or when did we hear of a revolution, or a great change, which did not affect the interests of some party or another. These kinds of walks do not produce weeds; we have a good many of them here which have not been weeded since I first mentioned the subject last spring; and the Editor, who looks over this sheet, looked very keenly over these walks last September, and he can say how many weeds he saw. I have been consulting Wells, the foreman of the pleasure-ground, yesterday, to see if we could make out how much money is spent on his department in a year for weeding walks Wells is one of those conscientious men who think three times before they answer you once, for fear of giving a wrong answer; and I can always rely on what he says. Between us we have settled that five shillings a year cover the expenses of weeding the pleasure-ground, with the exception of two walks that have not yet been remodelled; and there is a carriage-road from the mansion to the coach-stables here, which is much used, and from the end of 1843 to this day it has not been weeded at all, except six inches on each side, which is swept up when the roads are cleaned in the spring, and again just as the family are expected back from the London season. I never saw a weed on this road, and there was not a single particle of gravel put on it since the day it was finished. It was made only four inches thick, and about one half its length was made over a fresh bottom of sandy soil, three feet deep on one side and nearly two feet on the other, to fill up a natural hollow. Twenty yards of one end of it had to be taken up last spring, to suit alterations, but the men could not well break it with their picks from above, so they loosened away the earth from beneath it, six inches or so at a time, and then broke the crust into large lumps. This road was made about one-half the strength of the one made last spring, and that is the report on it at the end of seven years. This includes all the sides of this subject, and I make little apology for occupying so much time and space on it; for generations past we have been on the wrong scent altogether with walks and roads—railroads and all;—they too might have been laid down at less money after the bottom was put right; but now they go too fast for alterations, and it was necessary that proofs should be brought forward in place of assertions for a different way.

I shall first of all say how the model road was made, and then explain how we lay down walks. A thin layer of small chalk was placed at the bottom, not more than an inch or so, then a layer of the roughest of the stones, and a heavy roller, drawn by two horses, passed three or four times over this, which compressed the whole to about three inches, the stones made to imbed in the chalk, and the chalk squeezed and oozing up among the stones. After that, a good watering with a water-cart to soften the chalk to the consistency of glazier's putty; then a very thin layer of chalk, and another layer of stones of a smaller size, or broken with a hammer to the size of a duck's egg, and over that a mixed layer of the roughest of the old gravel and the smallest chalk; watered a second time to wash the last layer in among the stones; and next day, when this had drained down and the surface got dry enough, the heavy roller went over the road again several times. The last layer was now carefully prepared, by mixing six quantities of the rough gravel with one quantity of the finest chalk, and nearly an inch of this was spread over the whole surface, except at the sides, where lime was used instead of chalk, in order to have a firmer hold to resist the rain water that was foreseen must pass down the road a certain distance. The last coat was also slightly watered, and when it dried sufficiently to let the roller pass without clinging to it, the final rolling was given, much in the same manner as before, and thus a body of the best stones that were to be had in this place were so firmly bedded and compressed together, that when the whole was dry it would have been no easy task to undo the road again; and although the whole might appear to be seven inches deep, the roller managed to leave it only five. The original intention was to put on another layer an inch thick, after the heavy hauling of the Caen stone was done with; and this layer would be of finer and fresh gravel and the same proportion of chalk, that is, six of gravel and one of chalk; the surface of the road to be first well damped, but no watering over this layer, as there would be no hollow spaces to fill up by washing down the compost; after this last and finishing layer was rolled so firm as to make it as smooth as the paper on which I am writing, the whole would get a coat of very clean and very fine gravel, just enough to give it a colour and no more, and the road would stand just six inches deep. However, on the principle of letting well alone, the chances are that this last layer may not be applied these ten years to come. After a thousand tons of stones were hauled up this road in loads, as I said already, of from five to twelve tons a-piece, the Editor of this work was driven over it, and I dare say he did not perceive the difference from his carriage passing along a wood pavement on the streets of London; and if he did, he is still alive—to our great comfort—and may say so.

After this description, a garden walk is a simple process. One stout layer of stones, from where you can get them, or of broken anythings, from shells to rough coal-ashes or clinkers, will do for a dry bottom; chalk, or chalk lime, or stone lime, in the proportion of one of chalk to ten of the other thing will answer, well watered and well rolled to the thickness of three inches, and a rise in the centre of two inches, half an inch of gravel and mixed lime or small chalk, then finish by one-eighth of an inch of the best coloured gravel, roll till you are tired, but no longer, and—for the sake of variety, I kept the best part of the story to finish with, and here it is—whatever the width of the road or walk; make up the composition from the bottom four inches wider, and thus you will have two inches on each side under the turf;—the reason for this I shall say some other day.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

BALCONIES.—Amid the changing scenes of life, and the rapid shifting to and fro of tastes and fashions, there are still some things, the use of which remains unaltered. The Holly and the Mistletoe, so much in request at this sacred and festive period, were quite as much employed by our Druidical ancestors as by their polished Christian descendants of the nineteenth century. The mode of using them has been slightly altered; the great features connected with their use remain unchanged. Moralists may inquire about the propriety of borrowing such customs from ages, in their opinion, so dark and degraded, that their example in all things was rather to be shunned than imitated; but we content ourselves with looking upon them as signs of general rejoicing,—as indications, that though the various classes of society have stood too far aloof from each other, that *now* there is something like the attention and the kindness which evidence the perception of a common brotherhood; and *that* must ever exert an improving influence upon all.

With such feelings blended with the desire to learn something, and observe the progress of a refined taste, I have paced for hours, at Christmas times, the streets of our metropolis, and glanced, too, at some of our country towns, and if at many of our eatable-furnishing emporiums there was little to arrest attention but the profusion, mingled with the tawdry in embellishment, I must own, that often have I witnessed such arrangements of colour, and exhibitions of refined and elegant taste, as must have delighted the most fastidious, woven together so beautifully, no doubt by the fair hands of the female portions of the family, for in that respect the ladies beat us "blue aproners" hollow. But these artistic and evergreen emblems of rejoicing are not confined to external and window display in our crowded cities: they ornament alike the hall and the parlour; while in our country villages such beautiful arches and festooned wreaths decorate the mantel-pieces, and the windows of the cottagers; that looking upon these manifestations as the signs of rejoicing, or merely as the wish to be happy,—for the wish rightly formed goes a great way towards its realization,—I have frequently wished, in the words of an old song, "that Christmas time would last all year."

But what has all this to do with balconies? More than at first sight meets the eye. Every thing that breaks in upon the monotony of our existence is calculated to be of benefit. The exchange of neighbourly and friendly greetings in the end of December, and the first part of January, viewed even in that light are highly useful. I speak not of the scrubbing and cleaning in-doors,—that is not our province; but, first, look how nice the leaves of the plants in the window have been sponged and washed,—how clean the pots and saucers are,—how free from dust, and insects, and yellow leaves are the plants in the little greenhouse; nay, glance out of doors, and though the place be small, twenty to one but it is a picture of neatness: every withered leaf has been abstracted or buried; the grass-plot has been swept and rolled, and the walks made as inviting as possible for the pattering of little feet, or the more leisurely saunter of their senior folks, as a sort of relief from the enjoyments within. But look at the balcony! It is no great loss that the curtains are late drawn in the morning, and early brought into requisition in the afternoon. There are many exceptions, and honourable ones, but how generally does the balcony exist at this season of the year as a blot and a drawback from the otherwise pretty scene even in winter. In summer, the greatest care was taken to render it beautiful and attractive; *now*, you cannot get a peep from the window of what is inviting without, except by first encountering the decaying, the ugly, the wasteful, the unthought of, almost close at your elbow. There, right in front of the parlour window, is an elegant basket, bought, its owner may tell you, because one of those chaps in THE COTTAGE GARDENER sneered at the staring red pots; and, certainly, he will add, it was very much admired before the frost came, and this *re-rospect* is sufficient to counterbalance the dead and decaying vegetation with which it is now deformed. There, again, are some nice vases;—here the owner has been more thoughtful. He could see no beauty even in dead geraniums, however fascinating they might have been when alive, and, therefore, they are removed; but the vase is a beautiful object in itself, and, therefore, it shall remain. The earth in it without something growing in it, is, to be sure, no great attraction but then it can hardly be allied with deformity; and how will strangers know but I may have some beautiful bulbs or tubers in it; and do not I recollect the trouble in getting such good soil and the puffing and blowing I got it carried up here and am sure from what the writers say, it will do well for another season most with the addition [illegible]

And visions of shrewdness and economy flit across the good man's vision, only to be rudely broken when, after several days of rain and a sharp frost succeeding, he finds, some fine morning, that his splendid vase is cracked from the top to the bottom.

It will at once be seen, that all these disasters were merely the result of a want of a spice of forethought. That venerable lady, *Mrs. Think-in-time*, would have had her pots safely stored in the dry. She would have emptied her vase, or covered the top with a waterproof substance; it matters little whether it was lead, or zinc, or wood, or a nice cone of green moss, pegged so as the wind should not move it greatly;—she might do all this, but we question if she really would. She would be more ready to say, "My balcony was beautiful in summer! why should it not be interesting now? There are the green laurels, and hollies, and junipers, and cypresses without; and here are hollies, green and variegated, with flat leaves and curled leaves, and red berries and yellow berries, in profusion, with the flowering laurustinus, the painted aucuba, the blooming arbutus, the green and variegated phillyreas, and alaternus, all blended together, with sprigs of the mistletoe within; and why should my balcony, the connecting link between the inside and the outside, exist as a scene of desolation?" There is no reason whatever why this should not be. A small reserve garden would keep a number of beautiful evergreen plants ready to be moved to the balcony as soon as the summer beauties were gone. The uninitiated had better keep them in pots; though from being moved every year, and a little care exercised, they may be moved to the vase or basket, out of the ground at once, without injury. If, for the sake of variety, we should be fonder of some other colour than green, then there are enough of variegated plants hardy and common enough to interest us. There is the beautiful *Aucuba*, which the murkiest, smokiest atmosphere will not kill, though it would thank you for an occasional sponge or brush during the winter. There are also the variegated broad-leaved *Hollies*, almost equally enduring in similar circumstances, though the curious prickly, curled-leaved sorts will, at least, require a suburban retreat. The variegated *Boxes*, the little *Savin tree*, the trailing *Daphne cneorum*, the *Golden yew*, the beautiful varieties of *Vinca major* and *minor* (the larger and lesser *Periwinkles*) are only a little more impatient of smoke than their green-leaved neighbours. There are also many of our early-flowering, low-growing herbaceous plants that have variegated leaves, such as the *Mints*, *Ground ivy*, *Balms*, *Arabis*, and *Alyssums*. A number of these variegated plants, with a few upright *Cypresses*, would form a very interesting winter balcony garden. Pretty plants of *Portugal laurel*, *Arbutus*, and flowering *Laurustinus* may be admitted as contrasts. Each vase or basket may be distinct, or composed of several varieties; for instance, a large vase or basket has its centre filled with a compact flowering plant of *Laurustinus*; hanging in profusion over its sides are the white and yellow variegated lesser *Periwinkle*, while between the periwinkle and the laurustinus a row of *Snowdrops* may be peeping. A mass of *Erica carnea* might have a fringe of white or blue *Crocus*; whilst yellow, &c., might be the border for an evergreen shrub. In mild seasons the *Arabis* blooms during the most of the winter, and it, as well as every early-flowering thing—such as *Polyanthus* and *Hepatica*, might come in as border plants; and thus in winter and early spring the balcony would contain the concentrated beauty of the out-door garden.

But a something, or a somebody, is tugging away at my elbow, and saying, "All very nice, but will not the rains and the frost crack and destroy the pots and vases as easily with plants in them as when filled with earth without them?" No, not quite; first, because the plant

self will throw a quantity of the water wide of the earth in the pot; and, secondly, because a healthy growing plant will so far prevent the earth being sodden as to hinder a violent expansion by frost. There is, however, so much truth involved in your inquiry, that it is next to impossible to keep plants healthy in balconies with the common treatment that is generally given them in winter. The first essential to success is either a covering above to throw off the rains, or a temporary covering for each pot, of any light material, so formed as to be fixed to the rim, and leave space enough in the centre for the stem and branches of the plant. Here little or no water would enter, except through the medium of the water-pot. This covering may be of tin, and of any dull unconspicuous colour; the best substitute for it—nay, it should be used along with it—is a cone of green moss over the earth, as frost will not penetrate it, and after a little time, even when uncovered by the tin, no rain will penetrate of any consequence. Keeping this in view, a second means of success will be the using of double pots, or discarding them altogether for large, roomy, artistic vases. The use of the double pots is, that the lesser may be set inside the larger one, and the space between stuffed with moss, or any other non-conducting substance; the *drier* the material is for this purpose, whatever it may be, the better it will answer. This, and the moss cone and covering above, will prevent the soil being frozen, unless in extreme cases. We must recollect that a hardy plant in an exposed pot is very differently situated from a similar plant growing in the ground, with a suitable supply of moisture in the soil; if that is completely frozen, the plant can gain no advantage from it. I mentioned the other week about the parching effects of a dry cold air; this would be more telling where the plant could receive no supply to make up for the waste. Hence, plants in pots, in such circumstances, have brown, and blotched, and killed leaves, when their neighbours in the open ground are uninjured. Here, too, independently of their beauty, we recommend for such purposes large, thick, hard-burned vases, and especially for winter use the lips may be very spreading. If well covered at the surface, it will require a long continued severe frost greatly to affect them. A third and additional means of success would be to substitute wooden baskets and vases for all compositions of earthen and stone ware; its non-conducting properties would ensure from cold, and the covering from above would prevent unnecessary moisture. They might be made of almost any shape or pattern, and painted to resemble stone, or even china. By using separate pieces, a large basket or vase might thus be formed, and then it matters little whether you use pots inside or not. Even for single plants a wood box or tub is far preferable to a common pot. A slender basket, even of wire, will answer better than a common pot if the sides are well stuffed with moss.

A fourth means of success is carefulness in watering. After they are fairly established, they will want but little during the winter, though they must not be allowed to get dry; give water, however, when necessary in fine weather. The moss on the surface will tend to prevent exhalation there to a great extent; water will chiefly be wanted to supply perspiration from the foliage. If sunny mild weather renders the water-pot necessary, there can be no difficulty in the matter; give as much as is requisite. But if you know that the soil is dry, and a dry frosty air has lasted, and is likely to last, for several days, you may give a little at the roots, and replace the moss; but instead of deluging, it would be preferable to syringe the dry tops with cold water, and that will instantly be turned into a slight coating of ice, which, while it will not injure such hardy plants, will prevent the dry air robbing them of their essential juices. I have noticed hardy plants killed, and their twigs split into ribbands in a dry frost, when similar plants in similar circumstances stood a lower temperature uninjured, when coated with ice and hoar frost.

And, lastly, common loamy soil, with a little sand and leaf mould, will do for all I have incidentally mentioned; but where American plants, such as *Rhododendrons*, *Kalmias*, *Andromedas*, and some of the more delicate evergreens should be preferred, sandy peat soil will be requisite; and greater attention must be paid that they are not allowed to become over dry in winter. The mulching of moss on the surface will be one of the best securities from danger. R. Fish.

HOTHOUSE DEPARTMENT.

STOVE PLANTS.

Medinilla.—A family of stove shrubs, remarkable for fine foliage and handsome panicles of rosy white flowers, sometimes succeeded by bunches of very pretty berries highly coloured, and by that addition continuing their beauty for a long period. These handsome shrubs are a great acquisition to our hothouses, for independent of their beautiful flowers, their foliage and general habit are truly pleasing.

M. erythrophylla (Red-leaved M.); Brazil.—A curious plant with handsome foliage. The flowers are small, produced in bunches out of the old branches below the leaves. Only worth growing for its fine leaves. 3s. 6d.

M. speciosa (Showy M.); Brazil.—This is very properly named; for when it is either in flower or fruit, there are few objects in the stove that can surpass it in beauty. There is now in the stove at Pine Apple Place a plant of this kind 2½ ft. high, well clothed with large handsome foliage. It showed its buds of flowers between the highest places early in September, and was in full flower by the end of the month. Each drooping panicle (they were five in number) continued to produce a succession of flowers through the months of October and November, and the berries succeeded the flower through the next month, and are now of a beautiful purplish red colour, and as handsome as so many bunches of small grapes,—the largest bunch measuring six inches long, and four inches through at the widest part. In this state the plant is quite as beautiful as when in full bloom. It is a very desirable plant, which ought to be in every collection, however small. 5s.

M. Sieboldiana (Dr. Siebold's M.); Brazil and E. Indies.—This noble plant was sent by Dr. Siebold, three or four years ago, to the great horticultural establishment of Louis Van Houtte, at Ghent. Like the preceding species, it has large handsome leaves, and branching panicles of rosy white flowers. The chief points of difference are that the panicles spring from the axils of the leaves, and are upright, not drooping, like *M. speciosa*; the flowers are of a deeper tint; the stamens are bright red, and the anthers deep chocolate or violet. Like the former species it is a handsome desirable plant, as yet, rare in collections. 15s.

M. magnifica (Magnificent M.); Java.—We have written highly admiringly of the beauty of the two preceding plants, how then can we write in sufficient praise of the grand and noble plant, *M. magnifica!* The panicles of flowers spring from between the highest pair of leaves; they are drooping, and branching, and from a foot to fifteen inches long. The buds of the flowers before they open are of the brightest red; the corollas when fully expanded are of a deep rose colour. The panicle is surrounded by four large bractes or floral leaves of a whitish colour, and nerves of a pale rose. These are very handsome, but unfortunately soon fade. This fine plant was received by Messrs. Veitch and Son, Nurserymen, at Exeter, direct from Java, through their

successful collector, Mr. Lobb. It flowered for the first time in Europe in their hothouse last spring, and was exhibited, and received a large medal from the London Horticultural Society. They have not, as yet, obtained a sufficient stock to distribute it to the public. Messrs. Henderson, of Pine Apple Place, possess another species of Medinilla, of a dwarf habit, with smaller leaves, named *M. radicans*, but we know, as yet, nothing of its value as an ornamental plant.

Culture: Soil.—These plants being of a strong free growth, require a rich light soil. The compost we have found to suit them consists of two parts strong yellow loam, two parts good peat, and one part vegetable mould from decayed leaves, or the same quantity of two-years-old decayed dung. Add a sufficiency of sand to make it open and light. Let the pots be well drained with broken potsherds in the usual manner.

Summer Culture.—Pot in March into pots two sizes larger than that in which the plants had passed the winter. If the plants are young, they should have a second potting in June. Old plants will not require this, as it might prevent them flowering the same year. When the plants make their first shoots, they should be stopped to make them bushy. As these plants are found on the sides of the mountains, they do not require the highest temperature of the Indian orchid house. A temperature of 75° during summer by day, and 60° by night, will be quite sufficient. As they have large foliage, they will require a liberal supply of water during this season. Frequent syringing over head will be of a great service previously to the bloom expanding; after that, it should be withheld.

Winter Treatment.—As soon as the plants have done blooming, the quantity of water ought to be considerably lessened, and the heat moderated proportionably to 60° by day, and 50° by night. This will induce rest from growth.

Propagation by Cuttings.—Like most plants, this tribe is best propagated from the young shoots. The best time is in early spring. Take off the first-made shoots, pare the bottom quite smooth, about one inch below the two leaves, and the cutting is ready for insertion. If a great increase is desired, and cuttings are scarce, pass the knife through the pair of leaves exactly in the centre of the shoot, and each leaf will then have a bud at the base, which, when roots are formed, will vegetate and make plants quite as well as the entire cutting. Put the cuttings into a pot well-drained, and filled with the compost to within an inch of the top; the remaining space fill up with pure white silver sand, water it gently, and then plant the cuttings round the edge of the pot, placing them so that the leaves will lean inwards, and thus not touch the bell-glass. Fit this within the pot, pressing it close into the sand so as to completely exclude the air. Plunge them in a warm bark-bed up to the rim, shade from bright sunshine, and wipe the moisture off the glasses every day for the first fortnight. They will be rooted in a month or six weeks, and then the glasses should be taken off every night to harden the plants to bear the full air and light. As soon as they are well-rooted, let them be potted into small pots singly, placing them under a hand glass for a week or ten days, shading them till the pots are emitted, and then gradually inure them to the full light and air of the stove, and repot and grow them on till they flower as directed above.

ÆSCHYNANTHUS JAVANICUS (Javanese Æ.).—Calyx, [illegible] edged with red; corolla, tubular, spreading [illegible], and of a beautiful scarlet colour. The flowers spring from the axils of the leaves in pairs and threes; they are very handsome, and of elegant habit. As its name imports, it is a native of Java, and was introduced by Messrs. Rollisson of Tooting. It flowered in their stoves [illegible] again [illegible] and is certainly equal to, if not better than, any other species yet introduced.

Culture.—We have, in a former number, described the culture of the Æschynanthus, and must refer our readers to it, as the same methods answer equally for this species.

SINNINGIA GUTTATA (Spotted S.); Brazil.—A beautiful old plant, named in honour of W. Sinning, gardener to the University of Bonne. The flowers are cup-shaped, of a pure white ground, thickly dotted with crimson spots. The root is a fleshy bulb, from which, when large, spring several stems clothed at the bottom with large handsome leaves. The stems rise to the height of twelve inches, flowering abundantly, and lasting a long time in bloom, at which time few plants possess more beauty. We have written this week chiefly about new plants, but we do not forget old favourites merely because they are old. Such of our readers as do not possess this elegant flower, should immediately procure it, that is, if they cultivate stove plants at all. It is by no means common, or, at least, not so much as it deserves to be.

Summer Culture.—Early in spring bring out the plants from their winter quarters, turn them out of the pots, and gently shake off all the old soil previously to re-potting. Let the following compost be prepared:—Light turfy loam, fibrous peat, and half-decayed oak or beech leaves, in equal parts. Mix them well together and add about one-eighth of river sand. Let it be moderately dry when using. Use pots in proportion to the size of the bulbs. One potting for the season will suffice. Drain well, and cover the bulbs half an inch deep. Place them in a gentle heat—60° will be sufficient, for too much heat at first will cause them to start weakly. Let them be as near the glass as possible—a shelf in the stove will be a good situation for them. Give but little water at first, but as the plants advance in growth increase the quantity, but be careful not to over-water them in the early stage of growth. When the leaves are fully grown syringe them every morning and evening till the flowers appear, and then only water at the roots. Large bulbs should be in eight or ten-inch wide pots, and will produce eight or nine stems of flowers.

Winter Culture.—As soon as the bloom is over reduce the water considerably, so as to bring them gradually to a state of rest; then put them away into a place where they will be dry and free from frost.

Propagation.—When the shoots appear first there will often be more than are wanted; take them off, and insert them singly into small pots under hand glasses, in heat; they will soon strike, and should be hardened off. They will probably flower the first year.

T. APPLEBY.

FLORISTS' FLOWERS.

The whole business of the florist at this season may be described in one word—*protection*. We have repeatedly mentioned the means to be used, and hope our readers will have used them effectually. Every opportunity must be seized upon promptly to expose to the *air* in mild weather. T. APPLEBY.

THE KITCHEN-GARDEN.

THE principal operations to be performed at this season have already been mentioned; and should severe frost set in, strict attention must be paid to every thing of the small and tender kind, as well as all winter vegetables, &c. In rough weather, when out-of-door work cannot be so well attended to, temporary protectors may be made of various kinds. Tallies should also be prepared and painted in readiness for the naming and

lating of everything that is sown or planted, and space should be left on the face of the tally for any future observations. We always, at the time of shrubbery-hinning, tree-cutting, or any other kind of wood-work, ake care to save plenty of sticks, about two inches in liameter, and store them by, ready to be put in order luring rough weather; when they are trimmed out, cut nto lengths from eighteen inches to two feet, pointed at ne end, and cut at the other with a hatchet, and after-wards planed to a smooth surface. The tallies are then painted lead colour, dried and stored; and, if we fancy the face not quite smooth enough for writing on, with a bit of broken glass, it is quickly made as smooth as required. Where such tallies as these can be procured, they are the most durable, and save the expense of buying laths, which would otherwise be the best articles to prepare for such purposes. The saving of valuable time is very great when the busy season comes on, if we have all these little matters conveniently ready at hand.

FRAMING at this time requires strict attention. *Cucumbers* or *Melons* already ridged out should have, as much as possible, the heat applied at the top, keeping the interior atmosphere healthily heated from about 70° to 72°, applying air liberally, and keeping the interior well sprinkled down at shutting-up time with tepid water, keeping up at all times a kindly humidity. Young plants should be maintained in a sturdy condition, by being kept close to the glass, giving occasional applications of a little tepid liquid manure, airing liberally, and applying heat to the summit of the frame or pit. Seeds of favourite varieties should be sown in succession.

Place also in heat in succession, *Asparagus*, *Sea-kale*, and *Rhubarb*. The Asparagus in full cut may be much assisted by applications of diluted tepid clear manure water.

Carrots.—The well-known *Horn* variety still maintains its character for earliness; and is, indeed, as profitable to grow for general purposes as any variety that can be named. It may be cultivated on shallow, chalky, clayey, or gravelly soils, even where it is almost useless to attempt the cultivation of the other varieties; and on rich light soils this variety does not run so much to leaves as the other, so that we consider it worthy of culture in every garden. The next best variety for cottage culture is the *Green-top*, which produces excellent crops, and is a very free grower; the *Surrey* is to be recommended for good colour and long keeping; and the *Orange*, *Altringham*, and *Belgian*, are also favourites for some kinds of soils. The *White Belgian* is the most profitable to cultivate for cattle. *Carrots* should always be sown in drills, the seed being first well parted, and mixed in charred dust or wood-ashes.

Celery.—There are many improved varieties of late years, but a good description of both Red and White is all that is required for any garden; and sown on a little heat in April is soon enough to secure good plants, which will not be likely to run or get pipy.

Cress.—The *Plain-leaved* or *common cress*, with mustard, is the best for sowing in warmth for winter salad; and the *Curled* for sowing out of doors in the autumn, as well as for an out of doors supply throughout the winter; and the *American* for sowing in any corner also, for a winter's supply. The latter resembles the water-cress more than either of the others.

A small spot of *Chervil* should also be sown in September for winter use, and occasionally throughout the year, by those who are fond of it; as well as *Cardoons* and *Corn salad*.

Endive.—There is a good *curled* variety which, as well as the *Plain-leaved improved Batavian*, are amongst the best kinds; and to afford a winter's supply, they may be sown from June until September.

Lettuce.—There are many varieties, the *Hardy Brown Cos*, which stands foremost as the best variety throughout the year; the *White Cos*, which is a good summer lettuce; the *Victoria Cabbage Lettuce*, and the *Brown Genoa* are also good summer lettuces; and the *Hardy Hammersmith Cabbage Lettuce* is a good winter variety.

Onions.—We have never been able to discover a better kind than the *White Globe*, the *Old Brown* ditto, or *James' Keeping*. The *Deptford* and *Reading* are good for general winter's use; and the *White Spanish* and *Brown Tripoli* may be grown very large, and are good autumn kinds; and the *Two-bladed Onion* is a very useful kind when its culture is understood.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

AN EXTRA SCALE OF EXPENDITURE.

By the Authoress of "My Flowers," &c.

I have received the accompanying Estimate from a lady, whose views and practice of economy are strict and determined. She has, in her changeful life, experienced almost every shade of poverty and plenty, and therefore her opinions are not visionary, nor her ideas theoretical. What she states is the *truth*, and truth of the present day. She is, at this present time, practising the very closest economy upon a small but sufficient income for a widow; and having done everything, and directed everything herself, through all her vicissitudes, she is well acquainted with all that money can and ought to do, and all that small means oblige us to do without. Her residence is in a small but beautiful town in Sussex, and her Estimate is founded upon the rate of provisions, house rent, and wages of that county, at the present time.

The remarks with which my friend introduces her calculations are the following: "Imagine a young couple with three children, reduced to £100 per annum, what are they to do? Prayerfully seek help from God, and lay aside, annually, £5 of that small pittance to be devoted to His service; and although little can be done with so small a sum, the resolute determination that no want, however great, shall make them encroach upon that mite, will bring down a blessing on the rest; and surely they will have enough and to spare. I do not say that this is *all* they can give, but it is all they devote exclusively for that purpose."

My friend has ever practised what she here suggests; and in the midst of severe difficulties and trials, she has, with undiminished cheerfulness, rested in hope: the afflictions that have been softened in their descent, and the dangers that have been averted just when they seemed at hand, in conjunction with the privations through which she has been safely and comfortably led, prove the truthfulness of her own remark, that there will be "a blessing on the rest," and encourage us all to strive that our "deep poverty" may abound "to the riches of our liberality," to the praise and glory of God.

INCOME—£100 per annum.—Family of five persons.

	£	s.	d.
Charity	5	0	0
House rent	15	0	0
Clothes—gentleman, £10; lady and children, £10	20	0	0
Butcher	13	0	0
Bread and flour	8	0	0
Butter and milk	6	0	0
Cheese	1	0	0
Vegetables	2	0	0
Beer	0	10	0
Servant and char-woman	5	0	0
Coals and wood	8	0	0
Salt, spice, vinegar, &c.	0	10	0
Soap, &c.	2	0	0
Candles	2	0	0
Tea	2	4	0
Sugar	1	0	0
Rice	1	0	0
Education	3	10	0
Medicine	3	0	0
Extras	1	6	0
Total	£100	0	0

My friend adds, "This is a scale that suits this neighbourhood. At *this* time it is very liberal, and would render the family really comfortable. For the rent, a neat little box could be had, with a morsel of garden. The supply of coal would wash all the clothes *at home;* and the soap, char-woman and all, be *well* paid. The struggle to make a decent appearance is very trying for those who have been well and carefully reared, but an honest heart overcomes all, and a right feeling carries the day. The lady will be, to a *certain extent*, her own servant. She will rise very early and admit the char-woman, who, for a breakfast, comes in and does the morning work.

"The mother dresses her children, if they are young, and makes them dress themselves and each other, if older. The father then reads a portion of Scripture, and offers up the morning family prayer, and then reverently asking a blessing on their meat, they sit down to breakfast.

"The sleeping rooms are then arranged for the day; if the children are old enough, they remove, and wash up the breakfast things; and while the mother attends to her *ménage*, they return to the parlour, and occupy themselves in reading and needlework, until their mother comes to them. They then prepare their lessons for a master or governess, who attends them for two hours every day. The children also lay the cloth, and prepare the room for dinner. Exercise must be taken at suitable hours; if there is a garden, they may be out at every spare moment of the day. Their lessons should be learned in the evening for the next day. Early hours for the children, and for the parents if possible. The parents do not use candles during the long summer days, that is from May to July. The char-woman must be engaged all Saturday, to clean every thing, and cook the dinner for Sunday, cleaning shoes and knives, and putting all things in readiness, that nothing extra need be done on the Sabbath day. This is a rough draft to be improved; but without which all rules would be useless."

I have given my friend's "rough draft" because it may be a valuable help to some inexperienced mistress of a family, who will be able, by its light, to arrange her daily routine, so as to make the most of a small and inconvenient domestic establishment. By early rising, method, and activity, surprising things may be done in a household; and it is a special benefit, and indeed a blessing, to young women of the higher ranks, to be so accustomed to assist in these duties from their earliest childhood, as to feel them no burden or difficulty in their married life. Many a young woman of birth marries a man of very small means, and is for years, perhaps, learning and struggling to do that which was unknown and inconceivable, until she found herself plunged into comparative poverty, wishing and longing to make her husband comfortable, yet not knowing how to do it, or to direct its being done. How many troubled moments,—how many contentions arise, where all should be peace, from the young, ignorant, but well meaning wife, labouring to effect order, and comfort, and economy in her little domicile, yet labouring and worrying herself in vain! With zeal and *knowledge*, one family of narrow means will be clean, and cheerful, and regular, while without it, another of even better circumstances will be dirty, disorderly, and poor.

Let me impress my friend's "rough draft" upon the attention of all who desire to organize their domestic affairs in the best way, when the income is small, and where the family are required to assist much in the home department—when every member is willing to act with cheerfulness and good temper, in the different branches of home service, a striking benefit will arise from it and there will be nothing in these labours of love to endanger the good breeding of the lady, or to disqualify her for a larger and higher sphere, should she, in the providence of God, be removed to it; and above and before all, there will be nothing to deaden the taste for spiritual things, or to deprive her of peace at the last.

A SELECT LIST OF CHINESE AZALEAS.

Aurantia superba—orange-brown colour.
Apollo—crimson; bold stout flower.
Arborea purpurea—large purple, with a reddish centre.
Ardent—splendid scarlet; first-rate form. New.
Aurora—scarlet; neat habit; free bloomer. New.
Broughtonii—light purple, finely spotted.
Duc de Brabant—crimson; good shape.
Duke of Devonshire—scarlet; good free bloomer. New.
Danielsiana superba—deep crimson; neat foliage.
Eximia—light salmon colour, finely spotted.
Exquisita—violet pink, white edged, spotted with red.
Extranii—dark scarlet; good shape, very fine. New.
Fulgens—deep red.
Fielders—white, like old *alba* in colour, but a finer shaped flower.
Gledstanesii—white streaked with red; exquisite shape.
G. excelsa—violet rose; good shape.
G. candidissima—fine snow-white; fine shape. New.
Hebe—scarlet.
Hendersonii—rosy purple.
Holdenii—distinct colour.
Incomparable—large clear rose colour.
Ivoryana—white and red striped; fine form. New.
Knightii—white; evergreen foliage.
Lateritia—salmon colour; extra fine form.
L. alba—the best white out. New.
L. grandiflora—same as *Lateritia*, but larger flower.
Leucomegista—clear white; free bloomer.
Magniflora—fine large scarlet.
Mrs. Fry—bright red; very large flower.
Murrayana—violet rose; large, fine shape.
Modesta—peach colour; splendid; double. New.
Optima—crimson; fine shape.
Pallida—pale pink; fine.
Prestantissima—orange scarlet; fine shape; splendid.
Purpurea pleno—double purple.
Rosea punctata—crimson, spotted; fine.
Refulgens—scarlet; free bloomer; very useful.
Rubra pleno—double scarlet; distinct and good.
Reddingii—large scarlet.
Rawsonii—plum colour; free bloomer.
Speciosissima—good large scarlet: only fit for exhibition.
Splendens—light scarlet; very good.
Sinensis—orange yellow.
Triumphans—rosy pink spotted; free bloomer; fine shaped.
Variegata—rosy red, striped, edged with white. New.
Violacea superba—damson purple colour; first-rate. New.
Vivicans—white and red, lively distinct colour.

Flowering plants of those marked "new," average 5s. each; the others from 2s. 6d. to 3s. 6d. each.

GATHER UP THE FRAGMENTS.

AN article which appeared in your last number, entitled "Soup for the Poor," and which will, I hope, prove useful to many wives and mothers of families of the poorer classes, leads me to trouble you with a few remarks intended for those whom God has blessed with the good things of this life. Though much might be done by a poor woman in cooking the food for her family in the best way, and in

buying the cheapest materials, yet many are so wretchedly poor, that a little assistance from their richer neighbours at this season of the year (more especially) would be most thankfully received by them. I am convinced, from my own experience, that every gentleman's wife might, if she pleased, give soup weekly to a certain number of poor families, and this soup be made solely from the scraps and leavings of her own household. To illustrate my meaning I will mention my own plan. My cook, in the first place, is hired on the distinct understanding that she is to have no *perquisites*,—nothing is to be *sold*,—what cannot be consumed in the family is to be given (under my sanction) to the poor. Thus a great temptation to waste and dishonesty is removed, and kind feeling promoted to those who are in want. From my family—thirteen in number—we find scraps sufficient to supply eight poor persons with a gallon of soup each, weekly. All the bones, pieces of skin, and trimmings of meat are carefully put by in a pan until wanted; and by the side of my bread pan I have a smaller one, in which are put all broken pieces of bread, and the crusts from the toast we have in the parlour. In the course of the week these amount to a considerable quantity, and are soaked and added to the soup when served out. The scraps of meat, fat, vegetables, and bones, are all put in a large boiler, and allowed to simmer a long time; occasionally a little rice or oatmeal is thrown in to thicken it. I have asked some of my friends to adopt my plan, but they tell me their cook says she has nothing to make soup of: this is in families where strict economy, I know, is not observed. What, then, becomes of the "scraps?" They must either be sold—in this case the cook has an obvious interest in being wasteful,—they are put into the pig-tub, or given to undeserving beggars at the door. Having mentioned a pig-tub, I must say we have a pig, but he is fed on garden and dairy refuse, with the rinsing of plates and dishes, until his fattening time. I cannot bear to feed my pig on what Christians are thankful for: when my poor people are served I still find enough scraps for piggy. In my early married days an honest servant once pointed out to me in the man-servant's *candle drawer* five and twenty pieces of dinner bread, some dry and mouldy. They were thrown there from sheer idleness and waste, and were destined, I believe, ultimately for the dust-hole. This taught me a lesson not to have more cut than was necessary; but in every household, especially where there are children, some hard and dry pieces of bread will be left. How much better that these should be collected and given away by the mistress than slyly disposed of by servants. Should you deem these humble remarks worthy a place in your paper, may they be the means of leading some to provide out of their abundance for the wants of some of their poorer and most deserving neighbours—thus fulfilling our Saviour's words, "Gather up the fragments, that nothing be lost."—HELENA.

TO CORRESPONDENTS.

VINES WITH STOVE PLANTS (*R. G., Jun.*).—You say that you cannot take the vines out, and that your gardener says that if you give a higher temperature than 50° the vines will be injured, and that in that temperature your *Torrenia asiatica* and *Aphelandra cristata* are drooping and dying by inches. Now, first, we should be better able to advise you if we knew the plan of the house and the mode of heating. Though the vines cannot be removed, they might be brought horizontally close to the glass at the front of the house; and, even if the heating material was near the front, it would be possible to keep them cooler there than any where else, and very easily so if the heating medium was at a distance—say two or three feet from the front wall. Secondly, what your gardener means we presume to be, that your vines would be started sooner than you wanted them if you exposed them to a higher temperature than 50°; and we would not wish them to remain long at a time in such a temperature when having their rest period. By keeping them, however, at the front of the house, giving air there, and placing your tenderest things upon a stage at the back of the house, and giving no air there, you might command a mean temperature of from 50° to 60° at the back, while the front would range from 45° to 50°. In many such cases it would be desirable to have double front sashes, and then the vines would be trained in winter between them; or if that were too expensive, the vines could be secured close to the front, the front sashes taken out, and secured in a temporary manner behind them. The vines would still have the protection of the top sashes, and be kept dry, and you could give what more you thought necessary. Thirdly, without resorting to any of these methods, you must not expect great vigour in your stove plants during winter; but there is no danger of many of them dying at a temperature of 50°. We preserve large plants and small ones of *Torrenia* at a temperature considerably lower; and *Aphelandras* will be the better for their rest period soon after flowering. We are satisfied with 45° for their winter treatment, but then all their leaves become yellow and fall off, but the buds will swell. They may be cut down and repotted, and stimulated into fresh growth when a higher temperature is required for the vines. Hence, when vines are a principal object, and you cannot take them out of the house, nor resort to the means adverted to, you must grow stove plants for the pleasure they afford for nine months in the year, and be satisfied merely with preserving them for the three, when the vines require to be kept the coolest.

CEANOTHUS AZUREUS (*A. B.*).—This is still the most beautiful, and we rather incline to think you have got the true one, though it bloomed late. Cut in its hanging shoots to a bud or two, and fresh ones will be produced, terminated with their bunches of flowers. Where the shoots are strong, and there is room, fasten them in, leaving most of their length.

FLOWERING MYRTLE (*A Subscriber*).—This is too large for a room, and you have no greenhouse for it, and you ask, does it require a rich soil, and much pot drainage? To the two last queries:—Sandy loam will answer, and a fair amount of drainage. You might try your plant against a wall, protecting it with a mat or spruce branches in severe weather in winter, or if it is a great favourite, keep it during the winter in any place—barn, stable, or dry cellar, where it will not suffer much cold; setting it out of doors in fine weather, and giving it a good shift in May. Keep it in a sunny situation afterwards, that the sun may harden its wood; return it to similar quarters during the following winter, and afterwards it will constitute a pretty ornament to be placed near your dwelling, in any of the modes that have been lately adverted to as suitable for *oranges*, &c.

SCARLET GERANIUMS (*Ibid*).—These four in a pot now standing in a window, will not be injured, though not separated until they are planted out, provided they obtain plenty of soot-water in spring, except that they will scarcely bloom so soon as those that have been potted separately in March and April. We turn out multitudes from their cutting-pots, which contained not four, but more likely a dozen. But we use them chiefly for outsides, that a round bed, for instance, may have a conical appearance.

CALCEOLARIA SEEDLINGS (*A. H.*).—The smallness of your plants was owing to your sowing so late as October. You have done right in moving them from the seed-pot in little patches. When the seedlings stand so thick together, they are apt to go off by shanking and damping at the surface. As soon as you can, however, divide these patches again, by removing the largest plants first, until you have thus separated the complete patch. This plant, from its youngest to its oldest growing state, rather likes a moist atmosphere, not too hot. You do right in moving your plants from the pit to the greenhouse, but you must take care that they do not suffer in the latter place from a dry air, more than they would have done in the former from a moist one. To guard against this, set the pots in damp moss, which you have previously soaked in boiling or very hot water, or a few slugs may clear your pots in a single night.

HEATH SEED (*Ibid*).—This, whether the sorts be hardy or from the Cape of Good Hope, you cannot err in sowing as you propose in the spring.

SMALLEST SIZE OF ICEBERG (*A Constant Reader*).—This is a very difficult question to determine. A cone twelve feet high is probably as small as should be trusted to.

GERANIUMS (*J. B., Macclesfield*).—Geraniums taken up from the open borders in December should be cut down to the ripened wood, and kept half dry for two months at least. There is no such thing as *Amaryllis longifolia alba-pleno* that we know of. The Cape *Crinum longifolium* is often sent home as an Amaryllis; if that is your bulb you may let it rest till March. It will do buried six inches deep in a damp bed out of doors, or it will do in a pot, the bulb half buried, and to have a saucer of water under it in May, June, and July. If we had two inches of the point of the leaf, we could tell you if it is what we think.

HYACINTHS (*Ibid*).—Unless you are well acquainted with manure waters, pray do not try experiments with Hyacinths; they will do very well with rain or any soft water.

CEYLON SEEDS (*G. L.*).—2, 3, 6, 13, 14, 22, 24, 31, common balsams; 44, coxcomb; 45, 56, and 63, are common things from our own gardens taken out to Ceylon; 1, 4, 7, 19, 20, 49, are stove climbers; 1 and 4 would do for the new conservatory at Kew; the others not worth much. The rest are splendid trees, or shrubs, or fruiting plants, medicinal plants, and plants we hardly know, and some from all climes. 18, 23, 30, 40, 43, 46, 47, 57, are good old fashioned stove plants. None of these tropical things are now seen but in botanic collections. Cæsalpinias, Indian Mimosas, teak wood, Bixas, custard apples, Hedysarums, Cassias, &c., &c., are now out of date.

POTTING CAMELLIAS (*F. W. T.*).—You will find a list of *Chinese Azaleas* in the present number that will, we hope, answer your desire. Your large *Camellias* must not be potted till the end of July or beginning of August; the smaller ones pot in April, as you wish them to grow rather than flower. If Camellias are potted early, there is a danger of causing the buds to drop off by disarranging the roots. We have no knowledge of the raiser of *Queen Victoria* Camellia. *Albertii*, *Albertus*, and, we believe, *Prince Albert*, are all one variety. Pressly, not Priestly, is right.

INDIAN CORN (*Cordelia*).—Indian corn must have a perfectly sunny situation. A light and sandy soil, slightly manured, suits it the best. Too much manure will throw it late. Sow about the middle of April in

drills at least three feet apart, dropping the seeds about ten inches apart—two or three corns in every patch. Seed nearly two inches deep. When the plants are four inches high, single them out to one in a patch. Hoeing and other cultural treatment similar to mangold wurtzel. If you can raise the plants in a frame, they will be earlier. They may then be sown in the middle of March, and well hardened off by the second week in May, when they must be transplanted.

FLOWER-BEDS (*J. W. G.*).—The Dutch flower-garden in front of the greenhouse could not be better laid out or planted. The outline of the large bed, 8, is the only thing—we think—that any one could object to; but we are quite satisfied with it, and with the way you planted every bed over the whole ground, and also with the covered walk. How nice to have the two styles of gardens in one's place; but surely that was not your first or fifth attempt at picturing, else you must have devoured THE COTTAGE GARDENER weekly from the beginning. What was put in 2 after the *Nemophila?* almost every one has a Nemophila, but do not say or ask what to succeed it.

CLEMATIS SIEBOLDII (*J. S.*).—The best soil for it is light rich sandy loam, on a dry bottom. If your soil is heavy put three inches of the decayed stuff out of the ditch over it now, and after the frost has crumbled it down, then, in February or March, mix it well with the soil, and in April turn out the clematis. With your conveniences layers of the last year's wood, made in April, is the easiest way to increase it, but gardeners do so in various ways, as by cuttings, grafting, and inarching on the roots or stems of stronger sorts. The roots of *C. montana* are, perhaps, the best stock to graft it and the large blue one on. It is hardy enough to stand out near London.

LIST OF HARDY EVERGREENS (*A Constant Reader*).—You request a list of quite hardy evergreens that will live in pots to be plunged in a bed for show in winter. The following are suitable for that purpose: the tallest for the centre, the next size in front of them, and the dwarfs for the front:—Alaternus (Rhamnus alaternus), 2 ft.; A. aureus (Golden-edged), 2 ft.; A. argenteus (Silver-edged), 2 ft.; Arbor vita (Thuja orientalis), 1½ to 3 ft.; Arbutus unedo (Strawberry-tree), 3 ft.; Aucuba japonica, 2 ft.; Bay-tree (Laurus nobilis), 2 ft.; Berberis glumacea, 1 ft.; B. aquifolia, 2 ft.; Box-tree (Buxus sempervirens), 3 ft.; Box-tree (Silver-edged), 2 ft.; Buxus balearica (Minorca Box), 2 ft.; Cistus ladaniferus (Gum C.), 2 ft.; Cistus helianthemus (Dwarf C.), many varieties; Cotoneaster microphylla (Small-leaved C.), 1 ft., trailing; Daphne cneorum (Trailing D.), dwarf, requires peat; Erica australis (Southern Heath), 2 ft., and E. vulgaris (many varieties), dwarf, require peat; Gaultheria procumbens (Trailing G.), dwarf; Hollies, striped varieties, 3 ft.; Ivy, striped varieties, trailing; Lavender, 1 ft.; Oak evergreen (Quercus ilex), 3 ft.; Rhododendrons, many varieties, 2 to 3 ft.; R. ferrugineum (Rusty-leaved), dwarf; R. hirsutum (Hairy), dwarf; Rosemary, 1 ft.; Ulex europea flore pleno (Double-flowering Furze), 1½ ft.; Yucca filamentosa (Thready Yucca), 1 ft.; Y. gloriosa, 3 ft.

COVERS (*D. W. H.*).—Before a man vents his indignation, he should be careful to direct it at the right offender. If you direct your bookseller to procure you a cover for the double volume, 1848—9, you will have that which you require sent. You can return the other, or keep it for the double volume just concluded, as best pleases you. The *Advertisements* are on the first and second pages of our weekly numbers, and the Government Commissioners of Stamps will not allow us to repeat them in the monthly parts. Your query about *Clematis sieboldii* is answered in our reply to-day to another enquirer.

PLOT OF GROUND NEAR LONDON (*Rustic*).—You wish for from two to five acres. We do not know of any such plot. Advertize for it.

MEALY BUG (*V., Somerset*).—All we can recommend is given at page 157 of our present volume.

BACK NUMBERS (*Ibid*).—You can have all the back numbers of THE COTTAGE GARDENER, some having been reprinted twice, of Messrs. Orr and Co., 2, Amen-corner, Paternoster-row.

RYLOTT'S FLOUR-BALL POTATOE (*I. N. M., North Devon*).—We do not know where you can obtain this excellent variety, except of Mr. John Turner, Neepsend, Sheffield. As you have written to him for it, you will be certain of having a supply. The frost is probably severe there, and he may not like to move them just now. We cannot help you as to *Himalayah pumpkin seed*. We do not know *Thurston's Conqueror* potatoe. Can any of our readers say whether it is kidney-shaped?

AUTUMN-PLANTING POTATOES IN DEVON (*Ibid*).—If you planted late in November, we do not think that any winter in North Devon would induce the shoots to appear above ground. In addition to your *Forty-folds* and *York Regents*, we can recommend as good storing potatoes *Rylott's Flour-ball* and *Martin's Seedling*, and the *Red Ash-leaved*.

SOOT AND SALT FOR POTATOES (*Ibid*).—Thirty bushels of soot and eight bushels of salt per acre have been used with the greatest benefit to potatoes. Sown over the surface and dug in just before planting.

GARGET IN HEIFER (*Joseph Burgess*).—This hardening of the udder is very common in young cows. Bathe it with hot water, and then rub in, night and morning, a piece the size of a nutmeg of the following ointment:—Hydrodate of potash, one drachm, rolled very fine, and mixed with one ounce of spermaceti ointment.

NEWTOWN PIPPIN (*A. A.*).—This came from New York about the year '828. The true variety has been cultivated successfully in this country, but it requires a wall or very favourable situation. At the mouth of the Tees we fear you are too far north for this apple.

PAINTING BEE HIVES (*A Subscriber*).—You may paint them now, or at any time in dry weather. If you refer to our indexes you that we have to say about flowers for bees. Nothing is bet than Mignonette—keeping it longer in bloom by taking care stalk down as soon as it begins to form seed vessels.

BLACK BARLEY (*John Robinson*).—Our correspondent, a gent weaver, has sent us some black barley, which he says i lific. One grain produced *twenty-six* stems, and some of the *eighty* grains. Any one wishing for some may enclose two pe stamps and an envelope, *ready directed*, to John Robinso Ardsley, near Barnsley, Yorkshire.

VINEGAR PLANT (*A Grateful Subscriber*).—Will J. Thorpe give his "exact mode of preparing the vinegar for picklin on hot; and in what proportions?"

PINE-APPLE SEED (*F. W. T.*).—Certainly pine-apples pr and they are contained in the pips of the outer rind. They dark brown, and not unlike those of the Siberian Crab. A fe Mr. Barnes sowed three seeds of an Enville pine, given to hi Rolle. They were sown in lightish turfy loam, mixed with a litt well drained in a 7-inch pot, filled to within an inch of the top were placed near the centre, upon the soil, and covered 3-8th deep with the same kind of soil, mixed with a little charcoa sharp sand, to prevent its binding. The pot was plunged to front of the fruiting pines, in the stove, in a very moderate he 80° at that time, and the atmospheric heat kept about 60° much. The surface of the soil was covered with a bell-glass. quickly vegetated, and the seedlings were above the surface grass plants, in the course of twenty days from the time of so were pricked into thumb-pots, making use of the same kind of sandy and open with charcoal, the thumb-pots placed each in pot, filled with porous rooty soil, and then plunged to the rim same situation, under a bell-glass; watering and giving air quired it, dispensing with the glass altogether as they became and shifting them into larger pots when necessary. By th March, in the following spring, they were become sturdy p leaves 5 or 6 inches in length, thick and fleshy, and were plac the other succession plants. They differed materially from and not one resembled their parent, the true Enville variet countenance, colour, or habit, of plant or foliage. Each p within two years and a half from the time of sowing the seed pretty, sizeable, well-swelled fruit, and were spoken of as flavoured, but differing in size and shape from each other; o of a pyramidal shape, similar to the Enville, but not in colo other two were somewhat oval shaped. There was, at the time Enville was in bloom, in the same house, some Queens, a Bla and a Green Olive. We cannot account for the hybridi certainly did take place, farther than the bee had free access of ventilation.

PORT NATAL (*Ibid*).—Let your friend who travels so far in rior send you seeds of anything that may strike him as beaut is the only direction to give to a no-botanist. Tell him, howe out for the *Yellow Geranium*. One is found somewhere in t Let him send slips and rooted plants; some of one or other alive.

NEWLY-GRUBBED WOOD (*J. B., Wortley*).—This probabl excellent garden-ground. It will be quite fit for cropping without manure of any kind.

SUGAR BEER (*Prester John*).—In making this according t in No. 116, the sugar is *not* boiled in the water with the hops liquor is strained on to the sugar whilst boiling hot, and dissolved.

SAWDUST FOR POTATOES (*J. B. C.*).—When Mr. Tur mended sawdust "not from resinous wood," we presume tha reported what his own practice justified; but we know of no reason against using the sawdust of the fir tribe. In using *lin* toes, at any season, it should be slacked, sown over the surfa in just before planting. The *White nettle*, although not so exterminate as the Common nettle, yet has a perennial creepi certainly killed by being turned into the soil.

TOBACCO (*J. G.*).—The mode of drying this you will find of our 4th vol., and its culture at page 316 of vol. 2.

FLOWER-BED SHAPES (*S. W.*).—The suggestions made a our correspondent are good, and will answer several queries heard of some ladies, remarkable for good taste, having a prettiest formed *pieces of ginger* as models for their flower-be the effect was extremely good. I am adopting a similar plan, to answer my wishes exactly. If the selection is good, and elegantly formed, a nondescript kind of figure has a less form pleasing effect than the hearts, diamonds, circles, crosses other kindred shapes so frequently seen. I was told, how days ago, that a star-shaped bed of Anemones has a strik effect." Pray conquer your dislike for letter writing, and from you again.

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WEEKLY CALENDAR.

M W D	JANUARY 9—15, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
9 Th	Linnets congregate.	30.201—30.065	33—29	N.E.	—	6 a. 8	8 a. 4	11 a.31	7	7 20	9
10 F	Rooks resort to their nests.	29.908—29.821	34—28	N.E.	—	6	10	morn.	8	7 44	10
11 S	Snowdrop blooms.	29.791—29.760	34—27	S.E.	—	5	11	0 38	9	8 8	11
12 Sun	1 Sunday after Epiphany.	29.922—29.881	32—27	N.E.	—	4	13	1 47	10	8 32	12
13 M	Hilary. Cambridge Term begins.	29.912—29.882	31—22	N.E.	—	4	14	2 59	11	8 55	13
14 Tu	Oxford Term begins.	29.797—29.544	31—26	E.	—	3	16	4 13	12	9 17	14
15 W	Perfoliate Honeysuckle in leaf.	29.433—29.300	31—25	E.	—	2	17	5 26	13	9 38	15

If a pilgrim loving to visit the places where the good and the great have dwelt and rest from their labours, will convey himself to the good old Essex town of Braintree, and, staff in hand, will turn down by the west end of its stately church—a structure that will live in all legal memories for ever in connection with its never ending "Church Rate Case,"—and will pass on for some two miles along the road that leads to Witham, he will arrive at a little white church, plain and unattractive, with cottages appropriately nestling near it, and among them that of the village blacksmith. His forge, with the exception of the broad brick chimney, wears but a modern and no markedly thriving aspect; but that chimney must have vibrated with the echoes of the hammer's measured blows two centuries since; and who then stood by its side, and submitted the iron to their blows? No other than the father of the most excellent botanist that England numbers among its natives—even the father of the English Linnæus, John Ray. In the cottage attached to that smithy was this admirable man born on the 29th of November, 1627—by the side of that smithy chimney was his childhood passed;—but he was no common boy; and the squire of the parish—a Mr. Wyvill, if we remember correctly—hearing of his rapid progress as a scholar at Braintree school, aided to sustain him at Catherine Hall, Cambridge, and subsequently at Trinity College in the same University, whither he removed "because in Catherine Hall they chiefly addicted themselves to disputations, while in Trinity the politer arts and sciences were principally cultivated." In 1649 he was, at the same time as Isaac Barrow, elected a Fellow of his college; and the learned Dr. Duport, famous for his skill in Greek, used to say that of all his pupils none were comparable to these two. That he was not deceived in his estimate of Ray is evidenced by the fact that, before he was twenty-seven, in 1655, he had been successively elected Greek Lecturer, Mathematical Lecturer, and Humanity Reader of his college. He was also tutor to many gentlemen of high standing, but with none did he acquire so close a friendship as with Francis Willoughby, and with whom in after years he was intimately associated in scientific researches. Ray was always fond of Natural History, but he especially became attached to Botany from one of those providences we are so prone to characterise as accidents, which, though apparently evils, are in reality the seed-time of a future rich harvest of good. A violent illness—probably the result of intense sedentary study—rendered necessary the remedy of much out-door exercise; and as Ray was not of that class who can endure mere mechanical exertion without an accompanying object of mental improvement, he devoted his walks to the collection and examination of wild plants—researches which he continued for ten years, and which gave birth, in 1660, to his *Catalogue of Plants produced in the Neighbourhood of Cambridge*. In its preface he describes the difficulties he had to overcome in the prosecution of his botanical studies, especially the absence of a guide in the determination of species; yet he surmounted all difficulties, and succeeded in describing alphabetically 626. Many notes, abounding with original observations on plants and insects, are dispersed throughout the volume, all evincing signs of that excellence and celebrity to which he afterwards attained. At the Restoration of Charles II., in 1660, Ray was ordained a clergyman of the Church of England; but he never held any preferment, nor performed regularly parochial duty; and two years afterwards he was obliged to resign even his Fellowship, whereby his entire living was taken from him, because his conscience would not permit him to subscribe the Act of Uniformity. Yet there was no fanaticism, but the purest tolerant spirit within him; and how fitted he was to adorn his profession may be appreciated from that excellent little volume by which he is most popularly known—*The Wisdom of God manifested in the Works of the Creation*. Although deprived of the chief means of his subsistence, yet he was not left destitute, for he found a home with Mr. Willoughby, at Middleton Hall, in Warwickshire; and he occupied the remainder of his days in the pursuit of science. With Mr. Willoughby he traversed the chief southern countries of continental Europe, in a tour of which he published a narrative. But in 1672 a heavy blow descended upon him in the death of his friend. "He died," says Ray, "at the early age of thirty-seven, to the infinite grief of myself, his friends, and all good men." But Mr. Willoughby, even in death, did not forget his tutor and friend; for he made him one of the executors of his will, confided to him the education of his two sons, and bequeathed to him a life annuity of sixty pounds. For more than seven years he devoted himself to the education of his pupils, and then, after one or two intermediate sojourns, returned to pass his last days at the place of his birth.

If the pilgrim turns from the smithy to the church of Black Notley, he will find a plain pyramidal monument, near the door of its south side, recording the burial place of this one of the most worthy of England, and that his death occurred on the 17th of January, 1704—5. When we visited that tomb, now twenty-five years since, some previous pilgrim had written on the marble—"Why did Linnæus dedicate such a plant as *Rafania* to such a man?" In assumed humility the great Swedish botanist accepted the dedication to himself of *Linnæa borealis*—"a depressed abject plant, long overlooked, flowering at an early age,' and rendered still more appropriate by having some beauty and being native of northern Europe; but what fitness was there in dedicating to Ray an exotic climber of no beauty or worth?

Resuming his staff, let the pilgrim pursue his walk; and passing towards Witham—some mile or rather more from Notley Church—he will find a neat looking cottage on his right hand, with a small flower-garden between it and the road. It is of too modern appearance to be now as it was when Ray dwelt beneath its roof. Its front is plaistered and divided into panels by grey-coloured pebbles being splashed in parallelograms upon its front; and nothing but the old chimney remains to satisfy the mind that "here is something Ray also has looked upon." But it is gratifying to ponder over a dwelling within the old oak timbers of which such a man sat by "the bonnie blythe blink of his ain fireside," and wrote such works as *The New Arrangement of Plants* (Methodus Plantarum Nova), and *The History of Plants*—that vast work in which he has described and related the uses of the 18,625 species then known to botanists.

Again journeying on, and within a short distance of Witham, the pilgrim will pass Falkborne Hall, one of Ray's places of temporary sojourn before he finally removed to Notley; and if the pilgrim turns aside and visits the garden of that Hall, he will see, in one of the finest cedars of England, an object with which Ray unquestionably was familiar, and from which he probably derived some of those particulars which if we had space we would quote from his *History of Plants*, as a fair specimen of the good knowledge locked up from most gardeners in those huge Latin folios.

Travelling on through Witham, that town of neatness and quakers, down by the White Hart corner, away through the Wickham Bishop's woods, and "peaceful Totham, where (once) every joy was found," and Langford, near where many barrows mark the burying places of warriors slain in the contests between the Saxons and the Danes, the pilgrim will reach Maldon, the Camelodunum of the Romans; nor would we have him put aside his staff until he can rear it in the corner of the little Ship Inn at the Hythe adjoining, for there we found resident the last descendant of our national botanist. It is now a quarter of a century since we visited that little water-side ale-house and conversed with the great-grand-daughter of John Ray. She was a tall, quiet, maiden lady of some seventy years ripening; and John Sirrett, who was then our host, could tell her name and present whereabouts, but our own notes of the interview are lost, and memory is treacherous. Ray had married, in 1673, a Miss Oakley, of Launton, in Oxfordshire, by whom he had three daughters, from one of whom the good dame we visited was descended; but she preserved no traditions of her great ancestor, though she prized among her scanty store of books Derham's *Life of John Ray*, and had an engraving of him in a little black frame on the wall beside her oak-armed chair.

We have no space remaining to notice Ray's other works, all excellent, and holding an important position in our Botanical, Zoological, and Theological literature, but we must pay the tribute so justly due to him as a systematic botanist. In 1682 was published his *Methodus Plantarum Nova*, which, improved by himself a few years after, formed, beyond all controversy, the foundation of that Natural System which Jussieu, Brown, De Candolle, and others have since done no more than modify and correct according to the lights afforded by discoveries subsequent to the death of its first suggestor. A very good outline of Ray's system is given in the *Penny Cyclopædia*, where it is justly observed that this system was too far in advance of the knowledge of the day, and consequently was little appreciated by his contemporaries, who, instead of improving the arrangement so ably sketched out, set about establishing others on artificial principles, all of which are rapidly sinking into disuse, while the principles of Ray are tacitly admitted, and many of his fundamental divisions adopted. Haller, of all his contemporaries, alone affords him a due measure of praise; for he speaks of him as the elevator of botany into a science, and dates from his period a new era in its history. Let us observe, in conclusion, that no one improves the science of botany without aiding the advance of horticulture; for whether the collector detects new plants desirable for their beauty, whether he explains more certainly their habits and the phenomena of their life, or whether he teaches us how most easily to detect their names and history,—in each and all of those modes does he facilitate the gardener's onward progress. But Ray did more than this—for he was one of the first to demonstrate that the Creator is clearly "visible in the things that are made," and that in every plant is an evidence not only of contrivance, but of wisdom, providence, and kindness the most transcendant.

Meteorology of the Week.—From observations at Chiswick during the last twenty-four years, the average highest and lowest temperatures of these days are 40.9° and 30.7°, respectively. During the period there were 92 fine days, and 76 on which rain fell.

We once knew a lady who was infected with the most harmless, or rather the most interesting, of manias, a fondness for the genus Anemone superior to that which she entertained for any other flower; and she succeeded by some means in having some one or other of the species in bloom nearly throughout the year. In her shrubberies she had in profusion what she called "her pretty pages"—the Wood Anemone (*Anemone nemorosa*), with

its single and double white ivory flowers, mingled with those of the Yellow Wood Anemone (*A. Ranunculoides*)—blooming together in early April, and continuing for months "thickly strewn in their woodland bowers." In May and June she had the Palmate-leaved Anemone (*A. palmata*), with its golden stars, together with the many-tinted cups of the Garland Anemone (*A. coronaria*) and of the Garden Anemone (*A. hortensis*). Nor were the Common Pasque Flower (*A. pulsatilla*), with all its varieties of red and blue flower-cups, nor the Alpine Anemone (*A. alpina*), with its still more varied blossoms, sparingly found in her borders. If we remember faithfully, the last Anemone blooming in her garden was the *A. Nuttaliana*, sometimes with purple and sometimes with cream-coloured flowers, and these lasted through July and August. How she managed to have Anemones in autumn and winter, by the aid of her greenhouse, we know not; for in those days we thought more of the flowers than of their cultivation; and she is now gone to rest who would have delighted to impart her knowledge to the readers of THE COTTAGE GARDENER. She was not only a cultivator but an historian of this flower; and many relative pages, original and selected, were in her portfolio, of which but few now remain; nor have we the means of ascertaining from what authorities she gathered her lore.

"I have loved the Anemone from childhood; for my earliest recollection of a flower is that white one of our woods; and I call it still 'my pretty page,' because my father, as we strolled together, used to point them out as 'Springs pretty pages.' As I grew up, he told me of the fabled creation of our garden Anemone; and the translation from Ovid which I then read, re-read, and mourned the while over the fate of the beautiful Adonis, has never since been forgotten." Venus, it will be remembered, is said to have warned Adonis from the chase in which he died, and that from his blood she formed the Anemone.

> "Then on the blood sweet nectar she bestows,
> The scented blood in little bubbles rose:
> Little as rain drops, which fluttering fly,
> Borne by the winds along a low'ring sky.
> Short time ensu'd till where the blood was shed,
> A flow'r began to rear its purple head:
> Still here the fate of lovely forms we see,
> So sudden fades the sweet Anemone.
> The feeble stems, to stormy blasts a prey,
> Their sickly beauties droop and pine away.
> The winds forbid the flow'rs to flourish long,
> Which owe to winds their name in Grecian song."

As the Greeks derived its name f[illegible] he wind, so in England is the Wind-flo[illegible] popular [illegible] esteem [illegible] ime, [illegible]

In *Turner's Herbal*, published in 1568, it is called the Anemone; but he adds, "it may be called in English Rose Parsley, because there groweth a flower like a single rose in the middle of this herb, which is very like parsley in the leaves that are about the root." Gerard writing a few years later (1597), says, "The stock or kindred of the Anemones, or Wind-flowers, are without number, or, at least, not known unto any one that hath written of plants. For *Dodoens* hath set forth five sorts; *Lobel*, eight; *Tabermontanus*, ten; and myself have in my garden twelve different sorts; and yet I do hear of divers more differing very notably from any of these. Every new year bringeth with it new and strange kinds. Every country hath its peculiar plants of this sort, which are sent unto us from far countries, in hope to receive from us such as our country yieldeth."

The taste for this flower continued increasing; and when Parkinson wrote in 1627, he specified sixty-seven Anemones, adding that there were innumerable others, to distinguish which "would gravel the best experienced this day in Europe." Yet the art of raising varieties of them from seed was not familiarly known in England, but it was "practised extensively in the Low Countries (Holland); some of their varieties bearing such a high price, that no Englishman would buy them."

We may lament the less, that our friend died without bequeathing to us her modes of cultivating this flower, because we have now before us *Hints on the Culture of the Anemone, double and single*, by their most successful cultivator, *Mr. Carey Tyso*, Florist, Wallingford, Berks.

Like our friend, we prefer very much the single to the double Anemone, and we will quote from Mr. Tyso his mode of propagating it, at the same time recommending our readers to send to Mr. Tyso four penny postage stamps, in exchange for which he will send them the entire pamphlet, post-free.

Many beautiful colours of this species exist, both self and variegated; and though they are not usually propagated separately, under name, like the double sorts, there are certainly many of them deserving this distinction. It often happens, that persons raise two or three first-rate varieties from seed, quite worthy of perpetuation; but for want of separate culture and distribution, they live and die with their raisers: and to this circumstance may be attributed the slow progress made towards perfection in this flower.

When single varieties are left in the ground, or planted early (in August for instance), in congenial soil, they attain great strength; and flower through the winter, making a great display early in spring. On this account they are worthy of more patronage than has hitherto been bestowed upon them. They produce seed freely, and in this way may be easily multiplied, as well as by division. The fitness of the seed for gathering may be known by its parting from the [illegible]vis or flower-stalk, to which it is but slightly attached. [illegible] this is observed it must be secured without delay, or [illegible]nd will disperse and waste it. Select flowers of the [illegible]ality for seed bearers, such as have broad smooth [illegible]ped petals; if selfs, of dense and uniform colour; if [illegible]iped or mottled, then the colours should be rich and [illegible]ined. Remove or destroy all with inferior narrow and [illegible]my petals, to prevent the stock being deteriorated by im-[illegible]gnation from them.

[illegible]s soon as the seed is gathered, prepare a bed of nice [illegible]llow soil of which vegetable matter and road grit are [illegible]ge constituents, and rake it level. The seed being woolly [illegible]nd adhesive, put it into a bowl with sharp sand, and rub it [illegible]ill the seed and sand are evenly mingled. Then sow [illegible] thinly and cover lightly with similar compost. Little

red than the extermination of weeds and of water in periods of drought—and a ; of rich soil among the young seedling appear in less than a month. Thus en- edling plants will grow vigorously till y will flower in the succeeding April, when e marked, the worst rooted out, and space growth of those that have not flowered. 's are at rest, the largest (which will be in- ength of the foliage) should be lifted, and p-dressed with rich soil to encourage the h should remain undisturbed in the bed ie roots taken up may be dried and stored he double Anemones, but should be re- rlier in the autumn than is recommended

g of seed should be made in February, on d above. A few of these will flower in r in the following spring.
e roots may remain in the ground for two be preferred; strong plants will remain the year round, and during most of the ish ornaments to the table bouquet as a ivator.

NEW PLANTS.

PORTRAITS AND BIOGRAPHIES.

D ALMEIDEA (*Almeidea rubra*).—*Botani-* 4548.—This genus of Brazilian shrubs St. Hilaire, in honour of Don R. P. friend and patron; and *rubra* refers to of the flowers, which in this species are e end of the branches on close spikes, Five more species of these pretty bushes rded, and all natives of Brazil. They Natural Order *Rueworts* (Rutaceæ), and nce is *Galipea*, from the same country; lid not expect to see repeated in the gazine," it is stated, that the *Almeidea* alyx and nectary of *Cusparieæ*, stamens ovules attached as in *Cusparieæ*, and a *Monniera—Cusparia* itself being only a *alipea*, which has ten other synonyms by eight different botanists. *Galipea* was et, in his work on the "Plants of French 773. Subsequent botanists have been and, to make bad worse, the genus given in honour of Aublet himself, *Aubletia*, was pre-occupied by Linnæus as *Monniera*, referred to above. Like the Orchids, the Rueworts are arranged into seven natural groups, two of which chiefly inhabit equinoctial America, and Almeidea belongs to one of them; *Cusparieæ*, named after Humboldt's *Cusparia*, now one of the synonyms of *Galipea*. The other American group of Rueworts is *Philocarpeæ*, called after *Philocarpus*. At the Cape of Good Hope, *Rueworts* are abundant in the shape of *Diosmas*, and those allied plants now called after other names than Diosma; while in New Holland they abound in the forms of *Boronias*, *Eriostemons*, *Crowcas*, *Correas*, and such like old favourites with greenhouse gardeners. They all possess, in a more or less degree, the acrid bitterness and strong odour of the common rue. The bark of a species of Galipea is said to be one of the best febrifuges we possess, and much preferable to *Cinchona*, or Peruvian bark, for malignant bilious fevers.

The *Almeidea rubra* was discovered near Rio Janeiro. It is a branching stove shrub, from three to five feet high. *Leaves* alternate, shaped like those of the willow, but larger and broader in proportion to their length, and with inch-long stalks. *Flowers* red, in a spike, on smooth stalks, thickest near the flower; calyx in five sharp teeth; petals reversed-egg-shaped, and very blunt at the outer end. Stamens five, with slightly downy filaments grooved near the base, and with two hairy pimples above the groove. Anthers oval and in two segments. Style longer than stamens, with stigma divided into five sections. Ovary five-celled. Seeds kidney-shaped.

It belongs to 5-*Pentandria* 1-*Monogynia* of Linnæus. It blooms in September.

PURPLE-FLOWERED CALANTHE (*Calanthe Masuca*).—*Botanical Magazine*, t. 4541.—The genus Calanthe was founded on *Calanthe veratrifolia*—recommended by Mr. Appleby at page 166 of our present volume—by Dr. Brown about thirty years back; and is derived from

Kalos, handsome; and *Anthos*, a flower. An appropriate appellation. The specific name, *Masuca*, is softened from *Masuk*, or *Masuka*; the name by which it is known among the natives of northern India. Mr. Appleby tells us his selection from this genus is of easy management, which we readily believe; for our memory carries us back to a date when few gardeners could manage to keep orchids alive, much less grow or flower them; yet at that period, in the early history of the cultivation of orchids, we have seen in the provinces some large flowering specimens of the elder Calanthe; but to within the last year or two we did not observe evidences of high cultivation with it among competitors at our London fêtes. Mr. Appleby did not say that these Calanthes would grow well if gardeners were to turn them from pot culture into rich beds, as is now successfully accomplished with the pine apple; but such, we believe, would be an improved system of management. We saw the old *Calanthe* treated that way twenty years ago; and we remember that the late Mr. Lambert and a nurseryman at Warminster, Mr. Wheeler (through whose kindness we obtained a fine treat of private gardening in that town), expressed themselves with surprise at the luxuriance of a *C. veratrifolia*, which was also first pointed out to us as a great rarity, growing in a bank made against the end wall of a stove with roots, blocks of wood, turfs, and, if we do not mistake, leaf-mould also. The flower-stems were called magnificent, and they were so for such a scarce plant at that day, but nothing to be compared with some we have since been shown by Mr. Scott, gardener to Sir George Staunton, at Leigh Park, near Corsham.

How far the subject of our present biography may be adapted to this kind of treatment, we must leave for Mr. Appleby to determine, with this suggestion—that we should like much to see a bed formed for the free cultivation of stove terrestrial orchids and others which are manageable in pots, as *Phaius*, *Bletia*, *Cymbidum*, *Acanthophippium*, *Peristeria*, the *El Spirito Sancto*, *Cyrtopodium*, *Dendrobium*, *Sobralia*, for the centre of the bed, and smaller growing ones round the sides, falling towards the edge of the bed with *Cypripediums* and such things, to *Anœctochilus* itself in one corner. If a manageable hot-water system for warming the bottom of a bed of orchids, turned out this way, could be easily put into action, many of our amateur readers who cannot attend to the more delicate points in the culture of these beautiful plants, would find sources of endless amusement and interest [illegible] that close attention which [illegible] pleasure of anything connec[illegible]

[illegible] Petals [illegible] like ob[illegible] ple, and [illegible]

curved spur, furrowed and forked at the end. And hollow of the very short column. Pollen masses in t of eight.

It belongs to the Natural Order *Orchids*, and to *dria* 1-*Monandria* of Linnæus.—B. J.

THE FRUIT-GARDEN.

Fruit-rooms.—This valuable adjunct of a good requires a careful consideration—in its constr of principles on which both the keeping and ma of fruits depend. Gardeners and others diff what, both as to the modes of construction in the l and the subsequent management of the fruit; probable that much of the difference is traceal undue mixing up of distinct portions of the ma tion. Thus, some persist in the necessity of room; others, in one that is very dry. Now conceive, arises from omitting to consider, that which will preserve any given fruit for the length of time, is not that which will ensure th amount of flavour; especially with our winter pears.

The keeping of summer or autumn fruit ephemeral character, is altogether another matt is merely retarding through a somewhat earl ing, and a removal to some situation where sudden excitement, through sunshine and th varying conditions of a summer or autumn atm is warded off. These conditions are, of cour met with in almost any ordinary fruit-room; "text" requires that we take into consider causes which bear upon those anomalous ap in fruits, which sometimes puzzle exceedingl both practical and scientific attainments. N rotting is an ordinary occurrence; this m through accidental bruises, and even through maturity in the fruit; we do not mean ripen ordinary acceptation of the term, but that kin ness, if we may use the term, which at once a culture, and an improper condition of eithe atmospheric action. Some cases are termed "b the fruits seem all of a sudden to lose their ju to attain the sleepy character of the medlar. plies chiefly to the pear. Some will, all of a su or crack, and others will approach the chara petrifaction, as some have humorously remarke others will be simply insipid.

Now, for all this, we feel assured the mode of tion in the fruit-room is not alone to blame. the fault lies in bad modes of culture, inasmuch evils principally beset our more tender pears, o continental origin. Here, then, the question ou separated, and viewed from two points; the one any kinds, as far as the fruit-room is concerned artificial heat, and at what period; and the oth kinds do not require it.

We here offer an opinion, which may or m current; and that is, that there is a period in t every fruit at which a chemical change ough place, and during which a decided alteration in racter of its juices will be the sure result. This we believe, requires a certain specific tempe order to be accomplished; and if such tempe not furnished, either naturally or artificially, s malous appearance must of necessity be presen

We dare not here mix up the question with tions on the necessary degree of maturation in although it strictly forms a part of the questi space will not permit our doing so, or it we show how over-cropping, over luxuriance, worn stagnation through water lodgments, improp alone are capable of deteriorating the fl

qualities of many of our most valuable fruits, offered these hints in a collateral way, we will to the general functions of dryness and moist and cold, as affecting the main body of our d fruits.

well known that many apples keep longer if er the manner of potatoes, than if exposed on the lves of the fruit-room. It is also equally well hat in such a situation, if prolonged beyond inary time, they lose flavour—become earthy as We have never tried our best pears that way, tless the result would be the same. Here they antly damp, of course, and in addition the air ed. On the contrary, on the open shelves of a tairs fruit-room, with liberal ventilation, they hrivelled betimes; but instead of losing flavour ierally becomes, up to a certain period, more ncentrated, although what is termed dry and osing that smartness for which most fruits are esteemed.

ld appear, then, that where fruit of various re to be housed in one room, a medium condi- o both air and moisture, is the best; and such, e, most experienced persons will agree to. We rever, add here, that pears require a drier atmo- an apples; and, indeed, if an error must be d, by all means let it be on the dry side of the

llowing, we think, will be found safe principles the inexperienced:—

-A somewhat low level, with a subsoil perfectly ndered so.

r.—An easterly or northerly one; any point but south-west.

—The house rendered perfectly secure against e would never have the general store-room sink ty or rise above fifty degrees.

The power of thorough ventilation when neces- equally the power of rendering it almost her- sealed.

—Windows to admit light, of course, for the perations in the room; generally speaking, how- uit-room cannot be kept too dark.

ve here the main principles on which such ope- hould be conducted. Let us look over them y.

te.—We have said low, because we feel assured eeping the floor, if possible, even a little below id level, less fluctuation of temperature will be ed. Sooner, however, than be liable to much would go as much above the level as is neces- rder to avoid it. Concrete should be used for ng, and a portion of the foundation walls done t, to prevent the transmission of damp upwards ary attraction. The rats and mice are great es; the cement and concrete would keep them length. A preventive drainage may, by all e applied also round the exterior, if the locality

spect.—We have said easterly or northerly, ecause the winds are generally drier from such coolness in summer, too, is of course a great tion.

rost. — To create an artificial warmth, and o keep out the cold, or rather to procure as possible, the amount of warmth which the possesses, are two very different affairs. With artifical heat, we will offer our opinion in the nd as to preservation of the natural interior n winter, such is best effected by double walls, g a cavity of some three inches in width. The what are termed hollow walls, as non-con- f heat, is well known, in these days, to be very ble. Neither can exterior damps be readily transmitted; and, moreover, such are cooler in summer: for the sluggish agency of such walls in transmitting heat is as much in keeping out summer heats as the colds of winter. If the roof is an exterior one, it should either be double, or other means taken to keep out the summer heat.

4th. *Air.* — Of course a very liberal ventilation is necessary when much fruit is housed in the autumn. There should, therefore, be a special provision for both the egress of moisture, and for the ingress of fresh and dry air. The higher the level at which the latter enters, the brisker will, in general, be the circulation.

5th. *Light.* — Most good practitioners agree in the necessity of excluding light as much as possible. Scientific men say, that the surface skin of fruits perspires exactly as the surface of leaves; and that light is a prime agent in inducing such perspiration: hence, heat and light are conjoint causes of shrivelling. The windows or other apertures, therefore, must be provided with close fitting shutters, and these should be double, even as the walls. During severe weather, mats enclosing hay may be fastened over the exterior.

And now, as to artificial heat, we do think, that every good general fruit store-room should open into a small closet, which should be so fitted up as to produce an artificial warmth when necessary. If adjoining a mushroom house on the one side, or any place where a surplus of heat was available, such would be readily accomplished without extra expense in fuel. Some persons have advocated the placing piping to convey heat inside the cavity of the exterior walls: this sounds somewhat philosophical, inasmuch as in such a situation, with a slight amount of controllable ventilation, the non-conducting cavities might be kept dry and warm. The situation of pipes or other apparatus, however, should depend on the arrangement made for the fruit; the heating source, pipes, &c., being as far removed from them as possible, and certainly not immediately beneath them. Such a little closet might possess merely a stand for drawers down the centre; which stand should be an exact counterpart of a stand in the centre of the general store room; and the best pears, or other tender fruits, being placed in parcels in the general store, might be removed in portions to this ripening room, a whole drawer at once, without moving the fruit.

R. Errington.

THE FLOWER-GARDEN.

Garden Walks—Concrete.—The derivation of this word has been misapprehended by some. Those who refer it to *Concretus*, or to *Concresco*, are not on the right scent; it is made up of two Latin words, *con*, meaning together, and *creta*, chalk, or lime; that is, things put together by means of chalk or lime. Our new walks and roads, therefore, go by the name of concrete walks, or concrete roads. I have, for the last seven years, written more private letters about concrete than I can enumerate; for during this time, it was a subject of private conversation and comment, whenever two or three of us met together—and once or twice annually, a whole committee of gardeners met together on Turnham Green, and washed down their bread and cheese with a hearty dose of some kind of concrete or other; and yet without swallowing almost all the scientific ideas each of us had already imbibed on the philosophy of cultivation, none of us dared to let the cat out of the bag, for fear of being thought singular, or out of *the fashion of the day*—that greatest tyrant on earth.

It will be seen by my last two letters, that I have broken the ice in one of the departments of concrete making, and I have used it in every other department throughout the garden. I have full experience on its

effects, under tender roots, to keep them from cold bottoms; and also as a thatch to throw off snow water from where such roots could not well do without some kind of covering. I have even gone so far with it as to keep the roots of a thirsty plant from receiving a single drop of water, in any shape whatever, for the space of five years in succession; and yet the roots never lacked moisture all the time; while the plants, under the discipline, kept improving all the time. It will not be thought strange, therefore, if I say that my mind is fully satisfied as to the use and abuse of concreting; nevertheless, with the exception of my new walks and new roads, I never yet recommended the use of concrete; nor do I now, and for this reason, that with the greatest latitude, I cannot reconcile its effects with any known principle already familiar to the tillers of the soil; and it is in direct opposition to every idea yet set forth about cultivation. Some of our very best gardeners have occasionally let out a few glimpses of the value and use of concreting, in a way that all of us could refer to old ideas; and from such facts, a sound theory has been established lately. When the evil tyrant, however, will let go his grasp, and we are permitted to hear all that is thoroughly known on the subject, this theory shall crumble down—or rather be taken down—by the builders of it; and I think I know who could tell much about this foundation, if we could get him to take up his pen. I must observe, in fairness, however, that when a number of isolated parts, all tending the same way, are laid before the man of science, who after carefully and patiently—as has been the case with concrete—weighing the evidence before him, propounds a theory thereon, according to the facts produced, he has done all that is required of science to do—explained the natural laws on the subject; and the Lord Chancellor could do no more in a case of equity.

The use which I wish to make of this garden concrete to-day, is to point it out to gardeners as inapplicable for roads and walks; it is too flat, or too rich, as we say, for that purpose; it is all made up with fine gravel, and lime or chalk, in the proportion of one to six; and it will be remembered that I said at first, page 191, that walks are best when made with "solid concrete: made with anything, *except gravel*, that will concrete;" and now I put more stress on this, as I have heard already of old walks that are to be concreted over the surface next March; the present top gravel to be used instead of fresh. This would certainly be better than the old walks, if only to get rid of weeding; but unless the bottom is very dry indeed, and much less chalk or lime be used than is now done, for concreting to thatch borders, the first frost will split them all to pieces. That would not signify much in a garden-walk, as on the first dry day, the roller would put the whole together as firmly as at first; and that is the reason for saying that concrete is superior to the Roman cement spoken of; once the cement is crushed or broken, it is like glass, you cannot put it together a second time. Not so this kind of concrete: whenever the frost overtakes it in a damp state, it loosens the surface in some degree, but that is soon settled, as I have just said. Now, on a road much frequented, if the top has been laid with gravel and lime, and it gets loose by the frost, the wheels will sink into it more or less; that is not the case, however, when small stones are used. Though they be loosed by a very hard frost, after rain, their concrete bed keeps them still so close, that the wheels cannot remove them to and fro.

Although we say here, that we make our walks cheaper than other people, there is one, eight feet wide, which cost twenty-two shillings per running yard, five years ago. It is nine feet deep; and the foundation was laid forty-eight feet wide, just forty feet wider than at the face: the reason for this was to get to the level of er walks, which formed part of a design for an evergreen winter garden; the whole was made up with chalk, to within two feet of the required level; the rest with soil, except the breadth of the walk in the middle. In carting in the chalk, the horses or wheels came against the guide sticks, at any rate, as they could not say no, they were blamed, when it was proved that the first levels were out of joint by two inches; and as every one knows an inch out of level in a design is as much as a mile in many things, there was nothing for it but to reduce the intended depth of the walk by two inches; three inches of concrete over the body of chalk was to be the proposed walk, but now one inch must suffice, or else submit to have the walk like a pig with one ear, in reference to the other walks in the design. The walk had a good fall too; and this inch must be made in earnest, else the first summer storm would wash it down to the bottom, where an Arcadian shepherd and his dog sit quietly watching the whole scene, and that would never do. Well, a rough garden screen with which cinders are sifted, was put by the side of a large heap of gravel close by, and the roughest parts from the heap were soon searched out—all the hands on the job feeling anxious about the credit of the "Suffolk Bays," as if this walk should fail, they would be sure to have the blame for altering the levels. To ten barrow loads of this rough gravel, one barrow load of fresh slacked lime, at threepence the bushel, right hot from the kiln, was added; the foundation chalk well watered, and nearly two inches of the mixture spread over it, almost quicker than I can write about it; a hand roller passed over it as hurriedly as possible: three men required to take it up hill, and two to walk after the roller coming down, with a man by the roller both journeys to keep it clean, with an old broom, as the concrete had not time to dry before the rolling must be finished; and from that day to this, I believe no one has told of the level sticks, whoever put them wrong. Next morning, the roller, with some additional weights inside, went to work as earnestly as on the evening before; and after awhile, it was reported that the concrete was pressed down to the level required; but whether the bottom of the concrete was sunk into the chalk one inch, or whether the chalk rose so much amongst the concrete, remains a secret to this day; certain it is, that this nine feet deep walk had hardly two inches of prepared concrete in the loose state, and that a quarter of an inch of fine gravel is about all the addition it has had these five years; as the flat end of a budding knife has proved more than once to incredulous visitors.

Talking of the incredulous, reminds me of a story which is too good to be lost. The respectable firm, who contracted for the new buildings here, are the well-known Messrs. Lucas and Brothers, of Norwich and London; they too are great road-makers, after the Telford and McAdam school, when they build a large house or castle in a park, or alter old ones; the next thing is to make carriage roads and "coach rings." Now, one would think, of all people in the world, great builders ought to have been the first to lay down a concrete road; more especially, when, as in the present instance, such builders take to road-making as part of their calling. What difference could it be between a bed of stones from the beach, made up with blue lias lime, into concrete, for the foundation of a castle, than for a carriage road to that castle?—only in the weights each bed would have to uphold. If a man, or set of men, will not hesitate to pile up a thousand tons on a ten feet square of concrete, not more than two feet in thickness, surely they could risk ten tons on the same space, if only of one-fourth the strength? Notwithstanding their great experience in both branches, the Messrs. Lucas protested against altering the old road, till they had the first ship load of stone up at the front-door; saying, the extra hauling would take the cream off their contract, if

they had to drag up hill on a new-made road; yet the head of this firm told me the other day, that if I had taught him of this way of making roads seven years back, he would have saved such quantities of money on the roads he laid down since that time, that he could now afford to face my cottage with Caen stone, if not build me a new one from the bottom; and I believe Mr. Barry is exactly of the same opinion, but I have not seen him to ask, since I heard of my new convert. Therefore it is some encouragement for me to push on this new system all over the country; and if I hear of an old road-maker, or of a young gardener, who refuses to adopt my plans, if required, I know now where to supply their places from with confidence; for the very man who was frightened at the mere idea of this new road last May, says now, that he shall never lay down a road on any other plan; so that the old adage about a man convinced against his will, being of the same opinion still, does not always hold good, after all; and depend on it, these great architects and builders look on us poor gardeners just now, with a jealous eye, seeing that they have lost the credit of making glass palaces, and concrete highways; but at the same time, I am equally confident, if we do not brush up a little better in another department of our craft, these very men will soon drive out some of us at the north gate. Look at the lecture which Mr. Owen Jones, the architect, who won the prize for colouring the "Crystal Palace," read the other night, before the Institute of British Architects, in London, and substitute the words flower-beds, for his columns, girders, and all that sort of thing, and you might fancy Mr. Jones did little else, since he left college, but plant flower-gardens, according to the rules laid down in THE COTTAGE GARDENER; and all this while we have been wrangling about landscape gardening—words, about which no two men on earth will quite agree as to their proper meaning. I see plainly enough, if these great men find out the highest of our best coloured plants, so as to be able to suit their figures to the different heights, they may walk in any day and take the laying out of all geometric gardens out of our hands; at any rate, I earnestly entreat all those ladies, who are anxious about making a proper disposition of their flower-garden, plants, and colours, to read Mr. Jones's paper on colours; it is reported, word for word, in the *Times* of December 17; and I could also advise every young gardener, who can get hold of that number of the *Times*, to cut out the lecture, and commit it to memory; and in the meantime, I shall transcribe the third paragraph of the lecture, as applicable to the subject on my own hands at present. "No one can, in this world, hope to obtain the universal acceptance of his views on any subject, more especially on one so unsettled among us as decoration. What pleases one person, will be distasteful to another; yet, as truth is always truth, however different minds may receive it with different impressions, if I can but arrive at an approximation to true principles in the decoration I propose, I may hope to obtain the voices of the greater number of my professional brethren; and I must bear, as best I may, the disappointment of the rest."

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

WINDOW PLANTS.—Were it not for the length to which the notice on balcony plants extended last week, this subject would have been introduced as an outrider, as very many other matters and distinct families of plants are contending lustily for early notice. In giving this subject such prominence, I am only meeting the wants of many readers, as evidenced by the enquiries, and misgivings, and doubts of correspondents. Before entering upon a consideration of the subject, I may mention, that the list of plants for balconies in winter may be greatly increased where there is room. I merely instanced a few of the more striking; but there is one which I would wish to add, the *Berberis aquifolium*—not only because it is cheap and an evergreen, but also because it produces its yellow blossoms early in spring, and the flower buds look pretty during the most of the winter. Where there is no balcony, a large box filled with *Gypsocallis* (*Erica*) *Carnea*, and patches of *Russian violet*, *Winter aconite*, *Snowdrop*, *Dog-tooth violet*, and *crocus*, stuck in along its sides, would look very interesting during the winter and early spring. If the box is well made, and the surface of the soil well covered with moss, the frost will not do any injury; but the little heath will rear its blossoms amid drifting snow and raging storms.

To grow plants successfully in our dwelling rooms in winter, pre-supposes an amount of zeal and enthusiasm which intelligent amateurs only can furnish, and failures are the result alike of ignorance and even of knowledge, when the latter is associated with carelessness or forgetfulness. Let us first, then, allude to some of the causes of disappointment, and thus elicit the light that reveals the remedy.

First. In winter, *the air of sitting-rooms is too dry* for growing plants in general. In the matter of succulents it is somewhat different: the injury is soonest felt by plants with large, soft, somewhat spongy, open-pored leaves. A correspondent complains, that *cinerarias* removed from a frame to a cool airy greenhouse, kept shrivelling up their leaves. Minor reasons there may be,—the chief one is, that the more open and drier atmosphere of the greenhouse deprived the leaves of their moisture faster than the roots could absorb it. Watering at the root must be attended to; but syringing the shelves and foliage, especially during sunshine, until the plants were used to their new position, is quite as important. Such an effect would be more striking still, if such plants were brought into the dry air of a room. In mild weather this would not be so much perceived, because the fire would not be so large, consequently the air not so dried, while the fresh air rushing in at every crevice, by window and door, would be amply supplied with moisture; and besides, at times the window might be opened—and should be opened. But here, as in the case of plant houses, the season of keen frost, however short, is the most trying: not only is the air of the room dry, but that which finds its way from the outside has also had the moisture condensed from it. To supply evaporation from the foliage, water is given judiciously to the soil,—and so far right; but then evaporation is not confined to the foliage—the air is not merely dry, but somewhat warm withal, and moisture is rising freely from the watered soil,—nay, finding its way through the sides of the pot, because wise men have insisted, and continue to insist, that pots must neither be painted nor glazed, nor burnt hard, nor anything but beautifully *soft and porous*, for then there need be little bother about draining; and the consequence is, that the perspiration from the leaves, surrounded by dry heated air, cannot be met by absorption from the roots; because the *cold* produced by evaporation from the surface of the soil and the sides of the pot has prevented them from sucking in freely, though surrounded with plenty of moisture. The remedies are simple, but efficacious. Pots glazed or painted on the outside, the use of double pots, the putting the common pot inside of beautiful vases of china or other material, filling between them, at top at least, with moss, and in either case covering the surface with moss, would keep the roots in an equable state, as respects moisture and temperature: the roots would absorb more freely, because not cooled down by evaporation. But there is

no occasion to test this absorbing power to its utmost limit; the moss on the surface not only checks evaporation of moisture and radiation of heat from the soil, but if itself kept moist on the surface—which is necessary to keep it nice and green—that moisture will rise in vapour about the stem and leaves, and so far counteract the debilitating tendency of the dry air: and the last, but not the least effectual remedy in such circumstances is, *frequently sponging* or *damping* the foliage with water through a very fine rose, because then the dry air is obliged to be content, for a time at least, to absorb the moisture you have given to the outside, instead of drawing it from the inside of the leaves. This moisture instead of being prejudicial, will rather be beneficial to the inmates of the room—as a very dry air is not good for men, any more than it is for plants. I have been more particular here, because attention to these matters will render casualties from other sources less likely: for instance,

Secondly. As respects *watering*. The rule is—give enough to moisten the earth thoroughly as far as roots are to be found, and then wait quietly until your services are again required; and, but especially in winter, use soft water a little warmer than the atmosphere of the room. Inattention to this ruins hosts of plants. The pots will stand in saucers, if the pots are single; the water that passes into the saucers should not be allowed to remain any time. If the pots or vases be double, the water may stand in the saucer, *provided* it is not so high as to reach the base of the inner one in which the plant grows. If the plant had its lower roots in water, a grossness of habit would be encouraged, and disease would follow, as the result of every accident and change. When the soil has become so dry as to allow the water to escape by the sides of the pot, instead of making an exception in the case of such a plant and filling the saucer with water, so as to allow the soil to be moistened by capillary attraction, which is all very well for proficients, I would sooner dislodge the difficulty by setting the pot at once in a pail of water, and when thoroughly soaked allow the pot to drain, before replacing it in the saucer. Now, by attention to the means first specified, watering will be comparatively seldom necessary, and, therefore, there will be less excuse for entrusting it to unskilful or *unwilling* hands. Then the same holds good as respects,

Thirdly. *Temperature*.—The same rules apply here as we saw a few weeks ago applied to the ventilation of plant houses. Warmth without fresh air is as debilitating to plants as to animals. In the case of people in comfortable circumstances, in general, in winter their sitting rooms are too hot and dry, even for their own health—and hence the colds, &c., the result of the slightest change. Plants in these circumstances are often far too hot, in proportion to the light they can receive—and hence they become lanky and diseased. If kept close to the window during the day, there is less danger, because there the temperature will be considerably lower than it is by the seats at the chimney corner. It is when light is gone, and the shutters and curtains are fixed and drawn, and the [illegible] kept closed during the evening, that the [illegible] to keep them in a *cool* [illegible]

[illegible] dry atmo[illegible]

[illegible] ary before retiring

[illegible] out the temperat[illegible]

will decline. T[illegible] plants at nig[illegible]

[illegible] window, will be best

[illegible] ing been some time

extinguished, the register of the stove might be stopped, to prevent the escape, too quickly, of the heated air.

Fourthly. *Cleanliness*.—Respiring, perspiring, absorbing, decomposing, and assimilating processes are carried on in the leaves and green parts of the stems of plants. But these things can only be done when the leaves are clean. Hence the importance of a cover of cloth when the room receives its morning cleaning. But with all this attention, wherever there are pattering little feet, there will always be dust to encrust the foliage. What more delightful than to get the owners of these little feet to sponge and sprinkle the foliage which they had helped to encrust! What a zest might easily be given for this exercise of their tiny hands. Early impressions are the most lasting. Children must be active How desirable to lead that activity into channels that would promote a love of the useful, the beautiful, and kindly in sympathy.

We say nothing now of draining, the state of the soil, the potting, &c., because these have frequently been referred to. Where all these are right, attention to the matters above noticed will ensure bushy, healthy plants, involving just more cares, and therefore more honour, if successful, than if the plants had grown in the greenhouse. I may here be asked, "if these double pots—upon which you place so much reliance, especially if the outer one is *really*, or merely a cheap imitation, of China—constitute your *beau ideal* of window gardening?" By no means, I would banish the common red pot altogether from the windows of those who made any pretensions to refined taste, and whose means allowed them that gratification. Amateurs here must take no lesson from gardeners. Whatever some of us may think, *there are reasons* why we are obliged to be slow coaches on the road of improvement. I would not banish neat little vases for setting single pots with plants in flower, because variety even *in size* is compatible with, nay, necessary to, a united harmony of object. But for the principal part of the plants I would have shallow wide vases, or baskets of all sizes and patterns, made of cement, porcelain, wood, willows, zinc, tin, or galvanized iron, so that they *be light and elegant*—so formed, or so lined, that all the water from drainage should trickle to one point, and thence be discharged into a vessel concealed by the *pediment* on which the vase or basket stands, and which could easily be emptied at pleasure. In these vases, &c., I would plunge the pots in moss, and cover with the prettiest and longest, which is to be obtained in damp places in woods. By this method the plants would be easier kept in health, the labour would be abridged, and saucers be dispensed with; whilst the massive effect would be far more interesting than that produced by rows of plants growing singly in pots. The pots need not be so large for this purpose, as the roots may extend a little among the decaying moss with advantage; even little creepers, such as Linaria, Lobelia gracilis, and the smaller creeping Verbenas may be introduced with advantage, and thus a more finished and artistic effect produced. There might not easily be room found for them in pots, but that is not necessary; they may be grown several together in a small pot, then wrapped in moss, and just inserted where they can have a supply of water. Those who are particularly anxious might strew a little leaf-mould and charcoal amongst the moss in which they were plunged; but they will flourish luxuriantly among the moss alone. A little care, however, must be exercised, not to disturb the roots greatly when removing pots and replacing with fresh ones.

[illegible] intended saying something of the plants to be grown. [illegible] must postpone this to another opportunity.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS *(Continued from page 194).*

CIRRHÆA BRACTESCENS (Bracted C.); Brazil.—Sepals and petals white; the lip yellow and fleshy, divided into two lobes, or parts, and each part is folded twice. 42s.

C. LÆVIS (Smooth C.); Brazil.—Sepals and petals large, and of a bright yellow colour; lip same colour, and spotted with brown. 42s.

C. LODDIGESII (Mr. Loddige's); Brazil. — Sepals greenish yellow, striped across with dark red, and spotted; petals the same colour without stripes; lip the same colour, but curiously formed. 21s.

C. TRISTIS (Sad-coloured C.); Mexico.—Sepals and petals dark-coloured, almost purple, tinged with blood colour, and greenish yellow; the lip purple. The flowers are fragrant. This is the most common of all the genus. 15s.

Culture.—Though the flowers of this genus are not so showy as a *Cattleya* or a *Dendrobium*, yet they are worth growing, because they are produced on long pendulous racemes springing numerously from the base of the pseudo-bulbs, and bearing many flowers on each. At some of the exhibitions at the Regent's Park, and Chiswick, plants of this tribe were shown with thirty or forty of these spikes of their pretty fragrant flowers hanging down, and all round the sides of the pots in which they grow.

The compost they thrive best in, is chopped sphagnum (a white moss found growing in boggy springy ground); very turfy peat, broken, and the small sifted out, using only the fibrous part; and a free mixture of small broken potsherds. If a little half-decayed leaf-mould is added, it will be found serviceable. Pot them in March, or as soon as they begin to grow; keep them in the coolest part of the Indian house, and water always moderately, even during the growing season. In winter keep them without water for six weeks or two months. *At whatever season the water is given, let it be of the same temperature as the air of the house.* This applies, of course, to all orchids as well as Cirrhæas. The annual growth of these plants ought to be finished by the middle of August, and then their winter, or season of rest, ought to commence. To induce quietude, place them in a cooler temperature, and give water very seldom, only just enough to prevent the whole plant from drying away. The season for flowering is May and June.

CŒLOGYNE BARBATA (Bearded C.); Khoosea Hills, East Indies.—Sepals and petals white; the lip the same colour, streaked with bright yellow, and fringed at the margin. Rare. 63s.

C. CRISTATA (Crested C.); Nepal.—It is found growing on rocks, and in the hollows of branches of trees, where the leaves and small twigs afford nourishment to the plants. This is the finest species of the whole genus. The flowers are produced at the base of the pseudo-bulbs, on long racemes. They are very fragrant and large, sometimes measuring four inches across each flower. Sepals and petals pure white; lip white, with the centre raised into plaits or crests—hence its name. These are bright yellow, which contrasts strikingly with the delicate transparent white of the rest of the flower. A very desirable free-growing species. 42s.

C. CUMMINGII (Mr. Cumming's); Sincapore.—Sepals and petals white; lip bright yellow, with three white elevated plaits or ridges upon it, terminating with deep orange-coloured edges; very pretty, but shy to flower till the plant is of considerable size and strength. Rare. 42s.

C. ELATA (Tall C.); East Indies.—Sepals and petals white; lip also white, but has a stain of yellow at the end. The leaves are a foot long; the pseudo-bulbs are large and oblong, the raceme of flowers springing from the top of them; a circumstance very unusual in this genus. 42s.

C. FULIGINOSA (Sooty C.); East Indies.—Sepals and petals cream colour, transparent and shining; lip of the same colour, but has also numerous large blotches and streaks of a dark sooty brown—hence its specific name. It is also delicately fringed at the edge. The flowers are produced on a stem that is terminal, like *C. elata* Worth cultivating. 42s.

C. GARDNERIANA (Dr. Gardner's); Khoosea Hills.—The whole flower is white, tinged with yellow. This is a handsome early flowering species. The pseudo-bulbs are round and tapering, five or six inches long, of a beautiful light green colour. The leaves are produced at the top of these bulbs in pairs, about six inches long, and one and a half inch wide in the centre. The flower-stems spring from the base of the last formed bulbs. It is a handsome species. 31s. 6d.

C. MACULATA (Spotted C.); Khoosea Hills.—Sepals and petals whitish; lip having the same ground colour, but beautifully and richly spotted with a variety of exquisite colours. This species was very rare till last year, when a large importation arrived, thus rendering it more plentiful. It is a bulbous species. When the shoots begin to advance into leaf, there are on them two or three curious fleshy swellings surrounding it, looking like green frills. 42s.

C. OCELLATA (Eyed C.); East Indies.—Sepals and petals pure white; lip white, with a yellow spot in the centre, edged with chocolate, something like an eye—hence its name. Scarce. 63s.

C. PRÆCOX (Early C.); East Indies.—Very like *C. Wallichiana*, from which it differs by flowering in spring instead of autumn, and by the sepals and petals being of a paler hue, and the pseudo-bulbs smaller and perfectly green. Very rare. 84s.

C. SPECIOSA (Showy C.); Borneo.—Sepals broad, bronze yellow; petals very narrow, reflexed quite backwards, colour white; lip broad, the end quite white, the rest streaked with rich brown; large flowers, and a rare, handsome species. 63s.

C. WALLICHIANA (Dr. Wallich's); East Indies.—This species and *C. præcox* have been called "The Crocuses of India," from the resemblance they bear to that species of plant in their bulbs and place of growth. Mr. Gibson, late collector to the Duke of Devonshire, when he was in India, found them growing amongst the grass on hill sides, just in the manner that the crocus grows in its native wilds. It has also been found on rocks, and on the lower branches of trees in moist woods. The sepals and petals are a beautiful deep rose colour; the lip is the same, with a dash of white in the centre, and finely spotted with a darker colour. It was imported largely at the same time as *C. maculata*, which circumstance has considerably reduced the price. It blooms in November and December. The flowers spring from the base of the pseudo-bulbs formed the previous season, generally singly, but sometimes in pairs. It is a very handsome species, and very desirable. 31s. 6d.

Culture.—To cultivate this genus successfully, it should be divided into two sections:—The first to consist of *C. barbata, cristata, Cummingii, elata, fuliginosa, ocellata, speciosa*, and some other new species from Borneo not yet bloomed in this country. The second section will be *C. Gardneriana, maculata, præcox*, and *Wallichiana*.

The compost for *the first section* should be the same as that recommended for the genus *Cirrhæa*. The season for potting is when they begin to grow, which generally happens about February. Some of the species have long rhizomas (creeping stems), and would soon run over the edges of the pot. A good method to keep them at

home, is to place an upright block of wood in the centre of the pot; clothe it with moss, and as the plant advances in growth train to it, and fasten it with fine copper wire. It will root into the moss, and form a handsome elevated plant. When growing they require a liberal amount of water, but care must be taken that the water does not lodge in the hearts of the young leaves, as if it does there is great danger they will rot. In very hot weather syringe the plants in the morning, and give air to dry up the extra moisture. Shade from bright sunshine—removing the shade by four or five o'clock. This treatment applies only to the warmest part of the year. The annual growths should be finished early in the autumn, and then the heat and moisture should be reduced; and when winter approaches cease watering altogether.

The treatment *the second section* requires is different in several respects. The soil they should have is a compost of sandy peat, fibrous loam, and half decayed leaves, with a small portion of river sand. Drain moderately well, and place four or five bulbs in a six-inch pot, excepting *C. Gardneriana*, which is a strong grower, and requires a larger pot, and fewer pseudo-bulbs in it. The time for potting is as soon as the bloom is over, because as soon as the flowers decay the young leaves begin immediately to push forth from the same sheath, and will soon begin to put out new roots; before that takes place the plants should be potted. THIS RULE APPLIES TO ALL ORCHIDS, for if the new roots have progressed to any extent, or even at all, before the potting takes place, there is the greatest danger that they will be injured; and if the first young roots are destroyed, the shoots for that season will certainly be crippled, and the production of flowers the following season be rendered doubtful,—*therefore, always pot in time!*

The situation in which to place this section of *Cælogyne* is on a shelf near the glass in a cool stove; we have proved this to be the best place for them. Whilst growing they should be freely watered—moderately, till the leaves are considerably grown; and then abundantly, to encourage the production of fine foliage; which is sure to cause large pseudo-bulbs, and, consequently, plenty of flowers the following season. In potting them, use the precaution to place the bulbs just on the surface of the soil, and keep that level with the rim of the pots, not elevated, as is quite proper and right for all orchids that grow entirely on trees. In fact, pot them as you would any other terrestrial orchids, except keeping the pseudo-bulbs quite on the surface.

Winter or Resting-period Treatment.—As soon as the pseudo-bulbs are fully formed cease watering, and allow the leaves to turn yellow and die; remove them and continue the plants in the same situation, keeping them dry and cool. Pay attention to them occasionally, to see that the bulbs continue plump and fresh; should they appear to shrivel, give a little water, which will cause them to swell again; but be careful not to overdo it, or you may induce them to start prematurely. It is quite possible to have two crops of flowers the same year from this section of the genus, and it has been recommended to do so by a writer on orchids, but we fear it is asking from these lovely plants too much; and we think it would exhaust their strength and power to produce such fine bulbs and flowers as they will do, if the usual annual growth is contentedly allowed them.

T. APPLEBY.

FLORISTS' FLOWERS.

The long talked of, and, perhaps, long to be remembered, year 1851 has come upon us at last; and very mildly too, at least, in the neighbourhood of London. We do not remember ever seeing the various florists' flowers look so fresh and lively as they do at present, more especially *Carnations*, *Picotees*, and *Pinks*. We trust all our florist friends can say the same, and we may congratulate ourselves upon the fair prospect there is that British florists will have it in their power to put their favourites in their best trim and holiday dress, to meet the eyes of the great numbers of foreign florists that will visit this country during this wonderfully attractive year. The floral exhibitions we trust will be so good and excellent, that the continental growers will go home astonished at the riches that Flora has bestowed upon, and rewarded our industrious and zealous florists with, in this our own land.

See back numbers for instruction; there is not much actual work or operations to be done just yet. *Turn over composts* during frosty weather to mellow and pulverise. Keep all plants in pits and frames tightly covered every night; there is no certainty that the grand enemy, *frost*, may not pay us a more unexpected than welcome visit.

T. APPLEBY.

THE KITCHEN-GARDEN.

THE mild autumn of the past year has been very favourable for all out of door operations; and those who are really fond of their gardens, and take a true interest in what they are doing, can always find plenty of employment. Take special care at all times, when the surface of the soil is steady, to keep it open by hand-scarifiers, Dutch hoes, &c.; for by keeping these operations in full practice, the surface of the soil is at all times kept in a healthy condition; and severe frost does not injure the crops to any extent, whilst severe damage frequently occurs when the soil has been allowed to remain undisturbed, and become in any way close, or surface-bound.

If the weather continues open, keep the cabbage quarter filled up, should any vacancies occur, and the yellow leaves cleared; keep the soil about them also loose, and plant in succession. Sow peas, too, and beans, and a little cauliflower, in pans, as well as lettuce. Warm borders may be sown with radishes, and early Horn carrots; also a small warm corner with lettuce, and any favourite variety of cabbage.

Cauliflowers in pots should not be allowed to get dry, or pot-bound; those intended to turn out in February, should have their final shift at this time.

Parsley.—The best curled variety should be procured; half an ounce will sow a drill 100 ft. in length. Two sowings should be made in every garden—one in February, and the other after midsummer, which will furnish enough of this useful herb for the whole season.

The *Parsnip* is a very nutritious root; and for those who are fond of it, it is a very profitable vegetable to cultivate. There are two or three varieties: the *Hollow crowned*, the *Guernsey*, &c.

Radishes.—*Wood's early Frame*, *Long Salmon*, with the red and white *turnip*, would furnish a succession throughout the year. A small spot of the *black Spanish* may be sown for winter.

Spinach.—The *round*, for spring and summer, is a good variety; and the *prickly* for winter. The *Flanders* is also a good variety, and will answer the purpose for either summer or winter use. If a plant or two of the New Zealand spinach be raised in heat with the ridge cucumbers, and placed out under a hand-glass on a little heat with the same treatment as the ridge cucumbers, they will furnish a plentiful supply of green leaves in the heat of summer, at a time when the others are apt to run quickly to seed.

Turnips.—*Early Dutch*, *White stone*, *Snowball*, and *Red-topped American* are all very good varieties.

The short-jointed *vegetable marrow* should be cultivated by every one who has a garden.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

ɔening of a new year is a loud call to all men, ıigh or low, learned or unlearned, to consider their ɜ are all children of one Father, and His commands ssed to us as such—there is no law for the rich which is also for the poor; and none can slip ɪs meshes, because he is small and of no account. ' man may perhaps think that his low estate him from many sins, and screens him from many ns, and that the quiet, sheltering roof of his snug ıd the waving trees around it, shut out *the world*, ı of the dangers that surround the path of man. indeed, or might be, peace within the latticed ınd the rose-covered porch, and few may be the ıs that approach him through the narrow wicket to his neat and comfortable home, as much *his* ɜ lordly castle, or the palace of his sovereign; but is cast in the same mould with the hearts of all it is from *within* and not from without that peril f the heart were sound, no outward attempt could ınd where it is evil, we are never safe—not even liest walk of life, among the calm and beautiful the peaceful country, where few sounds reach us oke of the spade, the lowing of herds, or the roar ıtry wind.

cottager remember this, for he may be comforting ıder a terrible mistake; and when he hears the ıidnight peal that marks the beginning of another ıay listen quietly to its music, without considering ɪ warning it so loudly gives.

tager's "daily bread" comes as immediately from ɔf the Lord as the rich man's plenty. It is *daily* he full meaning of the words as regards bodily is loaf depends upon his labour; and if work fails s, he has no store to fall back upon to supply his e needs as deeply as his richest neighbour the ing and the daily grace, for how can he tell what bring forth to cut off his scanty earnings? How ', hard-working labourers have I seen, during the ɜ of severe frosts, unable to earn one shilling! and mes when work was scarce, either removing with lies to the Union, or bringing upon themselves a ɔead, that years perhaps could scarcely clear away! ɔssible to say that one class of persons is *more* upon God than another, for He is able to bring e merchant, the landed proprietor, the tradesman, leman, "while the meat is yet in their mouths"— ınt, in the twinkling of an eye, for all hold these s only by his will; but the peasant is no more his betters; and the new year solemnly repeats ɔessive words: "Consider your ways."

ıg instance of the gracious dealings of God with 'cottage gardener," occurred about two years ago; as an eye-witness of the fact, I can state it fear- ɪ old man of very religious principles,—one who ırs loved and feared God, and knew "the truth as us," met with an accident of a frightful kind. He ng to take in a wheat rick, and went on the top of to the barn. By some unintentional want of care, ɜ that he had with him struck against the top of ınd by this means Isaac C—— was thrown off the ɔh the fork, which struck deeply into his leg, and ıd to be drawn out by manual force. The flow ıat ensued was immense, and the poor man was me almost in an exhausted state to his agonized wound was so deep and severe, and the weakness of blood so great, that his medical attendant at tained little hope of his recovery: but he lay his bed "in perfect peace," trusting in the Great who brought him signal deliverance. No fever omparatively little pain was felt, and the lacerated ɜd as soon as possible. Even the surgeon ex- ɪrprise at the rapidity of the cure, but Isaac felt no surprise at all. He blessed and magnified the Lord who had so remarkably preserved and made him whole, but he said, "the promise of the Lord was sure to all who trusted in Him, and why should he feel *surprised*, when His word came to pass?" He said he had endeavoured to walk with God for forty years, and during the whole of that time he found that "mercy and goodness had followed" him; his trials and afflictions had been good for him, and he had been, as in this case, "delivered out of all." It was a beautiful sight to see this Christian lying in his humble but cleanly bed, rejoicing in the affliction, because he said it brought him into full and close experience of what his Bible taught him, and of the *faithfulness* of Christ. Many might have learned a wholesome and blessed lesson by his bedside, who were far beyond him in station and learning; for "the poor of this world, rich in faith," *can* set an example that monarchs would do well to follow.

Isaac C——'s cottage is very small, but brightly clean, and an air of cheerful peace seems to fill it. His wife is one of the very neatest, cleanest little creatures possible; and although they are both aged, and suffering from the natural decay of strength, they are full of contentment and thankfulness for all their blessings. He has never so fully recovered from his weakness as to be able to do regular work since; but he does what he can; and delights to "tackle the land," as he calls his little allotment, which is some distance from the village, but to which he devotes much of his time. He is *a cottage gardener*, and as such, his short and simple history addresses itself to many of my readers. His children are steady and respectable, and are comforts and supports, too, in his declining age. I often meet him in warm, sunny weather, resting on a bank, on his way to or from "the ground," and it is always refreshing to stay a few minutes and talk to him.

How good would it be for all cottage gardeners to walk in the steps of poor old Isaac C——! How quietly they would then rest under those Almighty wings, ever ready to shelter them, and from whose mighty security no man upon earth can tear them! How harmlessly would the evils of life pass over them,—how complete would their enjoyment be, whatever might betide, and how dazzling would be the home awaiting them, when their cottages are crumbled into ruins, their gardens broken up into wild desolation, and "the earth also and the works that are therein shall be burned up!"

We are beginning another stage of our journey towards eternity, but we cannot tell how soon our chariot wheels may stop. Let us be watching against that hour, of which "knoweth no man;" for it may be "at hand" to every one of us. As the new year opens upon us, whether in youth or age, in poverty or plenty, in health or sickness, let us all, my cottage readers, "*consider our ways!*"

SCARLET THORN, AND SCARLET HORSE-CHESTNUT.

Mr. Rivers, of the Nurseries, Sawbridgeworth, has written to me two letters, from which the following are extracts:—

"Dec. 14, 1850.

"You have got us poor nurserymen into a mess, by calling the *Double Pink* Thorn the "Double Scarlet." There is no such thorn. There are, as you well know, only two double thorns, the Double White, which fades to a pale pink, and the Double Pink, most properly named, for it is *always pink*, and never red or scarlet. Pray, make this right, for already people order Double Scarlet Thorns, and will not believe there is no such thing, because you say there is. No honest man can label a thorn "Double Scarlet," for it would be a lying label.

"Again, the Scarlet Horse-chestnut is *Æsculus rubicunda*

of London, and of all of us; my specimen tree is 30 ft. high. It cannot, therefore, be called dwarf. I have never heard it called "Scarlet Pavia." This name is applied to *Pavia rubra*, and its variety *P. humilis*, both dwarf, and with deep crimson flowers. I have never seen either of them called *Pavia rubicunda*; this latter name always being attached to *Æsculus*, your Scarlet Horse-chestnut, with large rugose leaves. The Pavias have all very smooth foliage. By the way, *Pavia discolor* makes a nice free flowering standard.

"I have long wished to get standards of *P. macrostachya*, a great favourite of mine, but the buds have always failed. I think I have tried it at times for these twenty years, and have never succeeded in making it a standard by inarching."

"Dec. 24, 1850.

"The four popular varieties of the Hawthorn ought to be named as follows:—

"The Pink Thorn, or Hawthorn, formerly known as the Scarlet Thorn.

"The Crimson Thorn.

"The Double White Thorn.

"The Double Pink Thorn.

"There is not the least approach to *scarlet* in any of them. Neither ought the *Æsculus rubicunda* to be called the '*Scarlet* Horse-chestnut,' but the Rosy Horse-chestnut. You see the old way was (but we must change such matters) to name a variety, not according to its actual form or colour, but according to what was *wished* for, or *desired*; thus, the *first* deviation from white in Hawthorn was called 'scarlet.' Too bad, was it not?"

At first, I thought Mr. R. put me down as a fast writer, who wrote at random, and to meet that charge I prepared the following defence:—In the first letter, Mr. R. wrote *Scarlet Horse-chestnut* as we all do, being such a common word in the nurseries. In the second letter, he is not far from my translation of *rubicunda*. What he says about his beautiful specimen of *Æsculus rubicunda* is a feather in my cap, for it thus appears that under first-rate management this beautiful tree attains to a greater size than I, or any of the authorities stated, was aware of. Still I should not feel myself justified in calling it otherwise than as I have. Last summer I saw six plants of Queen Victoria geranium about five feet high, and fine bushy plants; but few would take me for a faithful authority, if I called the variety more than a dwarf; and so with this chestnut. I did not know that *Pavia macrostachya* was so obstinate as to refuse uniting by grafts or buds, and notwithstanding Mr. Rivers's great authority, I am not satisfied about letting it off from further trials. Will it take on any of the smaller *Pavias*? Unless it refuses to do that, we may be sure of it yet, by double working, or, perhaps, by inarching in August, after the flowers are over; there are many plants that will neither root nor take by grafting while preparing to flower, or when in a flowering state.

I know all the double thorns, and the red thorns well, and also the chestnuts, but would rather not trust to my own eyes when I am called in question. In *The Gardeners' Chronicle*, vol. ii. p. 5, Dr. Lindley writes of the true Double Scarlet Thorn, and of the single form of it—"the most brilliant of all the thorns, with bright crimson blossoms, and the double variety of it has also flowers nearly as intense." Dr. Lindley would not thus describe a pink thorn, and therefore the probability is that Mr. Rivers does not know the sort. Respecting the *Scarlet Horse-chestnut*, I learned that name also, and did not make it; but there is no such in existence. No one has ever yet seen a Scarlet Horse-chestnut. Here, too, I cannot trust to my own eyes. The first account of the Scarlet Horse-chestnut is in an old French periodical of more than forty years standing, called *Herbier de l'Amateurs*, or, as one might say, a French *Cottage Gardener*. There it is first called *rubicunda*, that is, *glowing red*, or as we say in the country, a jolly red face. The next account we have of it, is in a work published at Berlin, in 1822, called *Dendrologische Flora*, with a plate, No. 22. In 1825, it was figured in London, in a work called *Dendrologia Britannica*, plate 121. Here it got paler, and was called *Carnea*. Dr. Lindley also named it *Carnea*, in the *Botanical Register*, plate 1056. But the elder Decandolle adopted *rubicunda*, in his large *Prodromus*, vol i. p. 957, just five-and-twenty years ago. Don, in his *Miller's Dictionary*, did the same, vol. i., p. 652. Loudon followed the true name in all his *Arboretums*. A Polish botanist, *Schubert*, called it *rubicundum*; and a German botanist, who seemingly got into Paris through the very centre of the multiplication table itself, and who, out of old iron, manufactures new names for old plants by the score, for the pages of *Annales des Sciences Naturelles*, calls it *Watsoniana*, very likely, after the author of *Dendrologia Britannica*—derivations being fashionable just now—and I recollect the day when, if Dr. Lindley had found two trusty friends like Mr. Rivers and myself, he would have gone over to Boulogne to "meet" this German botanist, with a piece of old iron. But having missed that, let Mr. Rivers consult the above authorities, and if any of them called his tree a scarlet sort, or if the best of them did not range it below the medium size, I shall consent to be called a fast writer, not knowing what I am about. D. BEATON.

NORFOLK AND SUFFOLK CLAY.

THE clay, or (as the Editor of THE COTTAGE GARDENER more properly calls it) the clay-marl, of Norfolk and Suffolk is used not only as a manure, but also as a building material; large bricks being made of it, and dried in the sun. These bricks are provincially called "lumps." Labour will be spared if the clay, which is to be used for this purpose, is cast before the winter; for then it will be in some measure crumbled by the frost. The work of making the lumps may be begun in the spring as soon as it is probable that there will be no more frosts severe enough to injure them. The first thing to be done is, of course, to temper the clay. This operation is performed in the following manner:—A quantity of straw is cut into lengths of eight or ten inches; some of this straw is spread on the ground, so as to form a bed two or three inches thick; this is done in order to prevent the soil from being mixed with the clay. On this bed of straw some clay is laid, and trodden by a horse, having been first sufficiently moistened. While this operation is going on, the clay is watered as often as is necessary, and some of the chopped straw is, from time to time, scattered upon its surface and trodden into it. I need hardly say that the use of the straw is to make the clay hang together, and to prevent the lumps from cracking as they dry. Eight or nine cart-loads of clay may be trodden at one time. In about two hours the clay will be sufficiently tempered; and the clay which formed the bed on which it was laid, will be found to be mixed with the mass.

The lumps are moulded in the same way as common bricks; but as no sand is used, the inside of the mould must be kept wet, that the clay may not stick to it. The length of the lumps is always eighteen inches, and their thickness six inches; but the width varies, being twelve, or nine, or six inches, according to the thickness of the wall that is to be built. Thus, if a fourteen-inch wall is to be built, lumps twelve inches thick must be used; for the inside and outside coatings, of which we shall speak presently, will add about two inches to the thickness of the wall.

When moulded, the lumps are laid, an inch or two inches apart, upon the ground to dry; as soon as they are stiff enough to handle, they are turned upon the other side, then successively upon each of the edges, and upon each of the ends. In about three weeks, if the weather be fine, they will be dry enough to be used for building; or, if not immediately wanted, to be formed into piles.

When these lumps are used in building, they are laid, not in or upon the ground, but upon an under-pinning of bricks, or, more frequently, of flint with brick quoins, and a course of bricks on the top; for flints are very abundant in this part of the country. The under-pinning should not be less than two feet high. The lumps are laid just as bricks are laid, except that they are all placed lengthways; the width of the lump being, as was before said, nearly equal to the thickness of the wall. They are laid, not in mortar, but in clay, tempered in the same manner as that of which the lumps are made; but no straw is mixed with the clay used for this purpose. Since, therefore, it cannot be trodden upon a bed of straw, the ground upon which it is tempered should be very firm.

After the building is roofed in, both the inside and the outside of the walls are coated with plaister, composed of equal parts of clay and a kind of marl, provincially called

margin;" this marl, as was said in a former notice, consists almost entirely of pulverized chalk. This mixture of clay and murgin, with the addition of cut barley straw, must be well tempered; it therefore ought to be trodden about four hours, and the stones and large pieces of chalk should be picked out of it, as well as from that in which the lumps are laid. Barley straw is used, because, being softer and more flexible than that of wheat or oats, it will yield more readily to the trowel; and, therefore, the surface of the plaister will be much smoother than it would be if any other kind of straw were used. Sometimes a second coating of fine mortar is used in the inside. The outer coating may be washed with white-wash made of lime. Before the coatings are laid on, the surface of the walls should be moistened. The spring and the autumn are the seasons most favourable for coating the outside of the walls; for if the plaister is frozen while wet, it will be defaced, or perhaps detached from the walls; and if it dries too quickly, it will crack. That part of the chimneys which is above the roof must be built with brick.

Clay buildings are very durable, provided the tops of the walls are protected from the wet; they are also very dry and warm. Most of the cottages, and some very respectable farm houses, together with barns, stables, and other outbuildings are thus constructed of clay; and they are very neat indeed. Where the house is built with other materials, the out-buildings are usually of clay.

The advantage of clay lumps over brick is their cheapness. The whole cost of a wall built of clay, is about one-fourth that of one built of brick and mortar.

In districts in which the clay of the eastern counties is not found, I think that some other descriptions of marl, or brick-earth, might be used for the same purpose.

Bricks very like those here described were in use at a very early period,—certainly more than three thousand years ago. In the book of Exodus, we read that Pharaoh reduced the Israelites to slavery, and compelled them to make bricks. At length, with the design of rendering their drudgery more severe, and of setting them a task which they could not possibly perform, he ordered that straw should no more be given them, but obliged them to gather straw or stubble themselves, at the same time requiring them to make every day as many bricks as they had been used to make, when they were supplied with straw. Some of the readers of THE COTTAGE GARDENER may perhaps wonder, as I remember I once did, how it was that bricks could not be made without straw. These bricks were like clay lumps, evidently made of some kind of tenacious earth, and not burned, but dried in the sun, and therefore could not be properly made without a mixture of straw. It is probable that such bricks were extensively used in Egypt; for if durable buildings can be constructed with lumps or sun-dried bricks in the rainy climate of England, they are plainly still more suitable to the climate of Egypt, where rain is almost unknown.

I hope I may be here allowed to remark, that some are perplexed with passages which they meet with in the Bible, because they do not consider that the events recorded in Scripture took place in remote ages, and in countries the climate, and productions, and customs, and manners of which were very different from those of our own country. Of this we have an instance in the circumstance just referred to; for though bricks very similar to those which the Israelites were compelled to make in Egypt are very commonly made in Norfolk and Suffolk, and perhaps in some other parts of the United Kingdom, yet I think it not improbable that this notice may meet the eyes of some who have never seen or heard of a sun-dried brick or clay lump, and therefore cannot conceive that there is a description of brick that cannot be made without straw. It is admitted that a knowledge of such things is by no means essential to the right understanding and a cordial reception of the great truths of revelation, yet we think that no kind of knowledge is quite useless which tends in any way to throw light upon the Holy Scriptures. I will venture to add another remark, which I hope will not be deemed out of its place in THE COTTAGE GARDENER. There is another kind of knowledge which is most essential, and for want of which, we fear that the Scriptures are a sealed book to many who are expert in all customs and questions which were among the Jews" and other ancient people: this knowledge God alone can give, and we trust He will give it to all who pray for it; and the most unlearned reader of the Scriptures, even the most unlearned hearer, though unable to read a word, will, if he obtains it, be made "wise unto salvation, through faith which is in Christ Jesus." REV. E. SIMONS.

THE PLAN OF MY FLOWER-GARDEN.

As you lately expressed a wish for patterns of flower-beds, I send you a plan of a grass garden, which, though probably nothing new, yet certainly has a very pretty and gay effect from the drawing-room windows, and is much admired for being so constantly gay, at so very little trouble or expense of labour beyond that of keeping it neat.

It has often struck me, that there are two serious objections to the modern "bedding-out" system: first, that it involves much labour and consequent expense; and secondly that in the interregnum, or "transition state," the beds are often dull and flowerless, and one's privacy and comfort often disturbed by workmen in the pleasure ground, and untidiness before the windows. I have been my own head-gardener for the last twenty years, despite of almost constant ill-health (during which time this pursuit has been my greatest recreation), and I think I may say, that I have succeeded in keeping my garden constantly gay, without the aid of a greenhouse, at a very small expense of labour, by the following arrangement:—

Around every bed, at about three inches from the grass, there is a complete and thick border of crocuses, of all colours mixed; the yellow begin in February, and the purple and white continue till April, closing over the yellow as they wither, and as the beds interlace each other, nothing can be more gay or beautiful than this bloom with a number of different hepaticas and early heaths in the beds. At about six inches within the crocus hedge, and eight inches from each other, are planted double tulips (chiefly *Rex rubrorum* and double yellow); like the crocuses, surrounding every bed, and being like them, only disturbed every three or four years, they form thick clumps, with several flowers on each. Between each of these tulip plants, or clumps, and in the same line, are plants of anemones or hyacinths. These are to succeed the crocuses, and form, with a little help from purple primroses, &c., my April bloom. It is not quite so brilliant as my March and May bloom, but still is gay. As these fade, the tulip bloom in May comes on and as these close over the fading anemones and hyacinths between them, they seem to form a perfect hedge of mingled scarlet and gold, round every bed of which the effect may really be termed gorgeous. There are, of course, within the beds a few May flowers to combine with them; and I consider this the most brilliant time. As these fade, all the June fibrous rooted plants, beginning with early blue lupines, double purple, and double white rockets, peach-leaved campanulas (blue and white, double and single), with small purple Siberian larkspurs, scarlet lychnes, and all those beautiful, but now much neglected "border flowers" come into beauty; then roses of all colours, white lilies, &c., with annuals and stocks planted or sown near the edges, so as to grow over the vacant space left by the bulbous root borders; then, the autumnal low growing phloxes, lobelias, and even in the more distant beds dahlias, with annuals and hardy calceolarias, last till the frost sets in; and one feels that neatness is now all that can be sought for, till spring restores gaiety and beauty once more.

I cannot admire those masses of colours now so much the fashion, unless the flowers themselves are handsome individually. A bed of geraniums is always beautiful; but there is something so non-interesting in a bed of white, or yellow, or lilac candytufts, compared to the beautiful mixture of our border flowers of all colours, that it seems to me as if so much yellow or white cloth laid on the grass would answer as well. I ought to mention, that in my walled-garden I have formed beds of ranunculusses, double anemones, auriculas, and other florists' flowers; and these, too, I think I manage to keep more constantly gay than is usual; but I have trespassed too long on your time.

AN INVALID LADY GARDENER.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

ICEBERGS (*G. Porcher*).—Mr. Beaton has sent to us a letter which, totally regardless of the above notice, you have sent to him, and in which you ask whether the article on *Icebergs*, with his signature attached, was written by him; because, as you are pleased to allege, of the frequent false statements made in the public prints. Now, if you had reflected for one moment, you would have seen that you were asking, in other words, whether the Editor of THE COTTAGE GARDENER had committed forgery for the purpose of swindling the public. Comment upon this is needless; and we will only add, that in future *all private letters sent to the writers in this paper will be burnt and unnoticed.*

COTTAGE GARDENERS' DICTIONARY (*Ibid.*).—It is too much to ask us to define terms, which every one who knows anything of Botany has at his fingers' ends. Every *Natural Order* (Nat. Ord.) is a group of plants more or less resembling each other, and after one of which the Order is named; thus, *Mimosads* is the Natural Order of which Mimosa is a prominent member, and (Fabaceæ) is the name usually given in botanical works for the same Natural Order. 23-*Polygamia* 1-*Monœcia* are the class and order in the Linnæan system, the numbers aiding the memory as to their position in that system. These particulars apply to ACACIA, but will serve as explanatory of all the others.

CABOOL, PLANTS FOR.—In our answer about Cabool seeds *Clitoria ternata* is put as an annual, which it is not; we ought to have said *treated as an annual*, which is by far the best way to manage it in a warm country. A friend, who so used both that and the Marvel of Peru, at the Natal River, told us how well they did.

BURYING BEES *Cornubiensis*.—Our correspondent says, "An Old Bee-keeper," who kindly cautions your readers against being led astray by the quotation from the *Hereford Times* in page 339 of THE COTTAGE GARDENER, relative to the entombment of bees, has certainly arrived at a wrong conclusion. That communication appeared originally in *The Gardeners' Chronicle* for 1841, pp. 717, 785, bearing the signature "Yeoman;" in reference to whom Dr. Lindley assured his readers, that although his correspondent chose to preserve an incognito, he was in all respects trustworthy.

EXCRESCENCE ON PEACH-TWIG (*A Junior*).—The regularly arranged rows of a bead-like band round the enclosed twig, are the eggs of the Lackey Moth, of which you will find a drawing and description, as well as of these eggs, at page 207 of our first volume.

ROSES (*Jane, Ireland*).—Yes, we allude to young wood only; but if we were on the spot we should probably order whole shoots to be removed, without reference to the age. Strong hybrid Chinas, and others of that free style of growth, must often be dealt with that way, and some of their young shoots left much longer than we advise in a general way. French pruning is not applicable for our climate in all cases. When shoots, young or old, small or large, in a rose or any other bush, get too crowded, the only safe rule is to cut out some of them quite close to the older wood. Pray repeat the question about the pear-trees, and say the age, kind of growth, and the nature of the subsoil.

FLOWER-GARDEN (*Invalid Lady Gardener*).—Your beds are of the very best forms, and very well arranged, with the exception of the second one from the house in the middle, between the house and basket. Instead of that, we would repeat a couple of the nine-feet beds beyond the basket; if smaller, that would not signify. The uniformity of the whole garden would be preserved with a good selection of plants; and by keeping the tallest in the large corner beds, you might make a very good picture of this garden. But in the absence of lists or any guide we can go no farther.

TOOLS (*Sigma*).—All the tools that a half-acre allotment holder requires, are a good *spade*; two broad *hoes*, nine and seven inches; two small *hand-hoes*, four and three inches; a couple of strong round-toothed *iron rakes*; a strong *wooden rake*; a *Dutch hoe*; a strong *potato fork*; a *hay fork*; a *garden line*; a *wheelbarrow*, or two; and a small *wooden roller*. The plough has no business here. "Half-acre men" should show—which they well can—that the spade pays better. A small *donkey cart* would be readily planned by a country wheelwright. The main thing is, to get the land in good tilth by thorough working when dry. Without this all is uphill work; and it is thus that more powerful implements become necessary. *Lucerne* is sown at the rate of about twelve pounds per acre. *Rye* about two bushels. We will discuss the *cow* question in our February allotment paper.

BEE-HOUSES (*W. F. G.*).—Your plan for a bee-house is a very good one; the asphalt felt would be objectionable. Paint the whole outside with stone colour; either green, lead colour, or white, are not so well; and be *sure* to have height sufficient for *two* supers upon each stock, which will very frequently be required; and if of glass, they must be covered, notwithstanding their being enclosed in a house. The holes you mention will afford sufficient ventilation, except in the height of the honey-gathering season, and at swarming time, when the doors *must* be open, or the roof raised, as well as the whole front being shaded by matting or canvass.

PLAN RETURNED (*G. S— B.*).—We have no recollection of your plan out of the multitude we have to inspect. We certainly have it not in our possession. Wewill inquire about *figs in pots*. We saw some rowing in Mr. Rivers's greenhouses, at Sawbridgeworth, and our remembrance is that they occupied about four square feet. He keeps them dwarf, like small currant bushes.

GRASS SEEDS FOR A LAWN (*Mrs. Edwardes*).—As you tell us that your soil is "a good loam," we have no difficulty in answering your question. For an acre, you will require 6 lbs. of *Cynosurus cristatus* (Crested Dog's-tail), 3 lbs. *Festuca duriuscula* (Hardish Fescue), 2 lbs. *Festuca tenuifolia* (Narrow-leaved F.), 20 lbs. *Lolium perenne tenue* (Slender perennial Rye grass), 1½ lb. *Poa nemoralis* (Wood Meadow grass), 1½ lb. *P. nemoralis sempervirens* (Evergreen do.), 1½ lb. *Poa trivialis* (Common Meadow grass), 7 lbs. *Trifolium repens* (White clover), and 2 lbs. *T. minus* (Small Yellow clover). *An Amateur* will please to take this as an answer, *if his soil is similar*; if it is not, he must state its character.

CROP AFTER POTATOES (*Causidicus*).—As your light land in Norfolk was manured for the potatoes (hence one cause of their being virulently diseased), you need not do more than give it another slight dressing of manure, and sow barley early in the spring, as you wish for a uniform crop. It ought to produce a good crop if sown early.

MISTLETOE SEEDS (*G.*).—You will find a very full account of how these should be sown in our 29th number, page 22.

MINOR QUESTIONS (*An Inquirer*).—Messrs. Knight and Perry will send you lists, if you apply in the mode you mention. The true *Forget-me-not* does not grow by the side of ponds. You have some one of the half-aquatic species of *Veronica*, and these will not flourish in dry garden soil. Your *Morello cherry-trees* are blighted annually. Blight is too indefinite a term. Do you mean they are attacked by insects, and if so, of what kind? The *caterpillars* attacking your Brocoli were probably those described at page 207 of the present volume.

NAME OF PLANT (*Sancho*).—Yours is the Christmas rose (*Helleborus niger*). Thanks for your hints.

BEGONIA COCCINEA (*An Inquirer*).—The leaf is a full sized healthy one. You have acted right in every respect; only we would not have given it such an amount of rotten dung. It will not interfere with the luxuriance; only it may render it longer before it flowers. You have nine shoots 14 inches long. They are likely to bloom in a month or two, and all the readier if you kept it rather dry and cool for a month—say in a temperature from 45° to 50°—and then put it in a temperature 10° higher, and give water. Do not think of shifting it; but if it does not flower, as you may have grown it too luxuriantly, do not cut it down, but shift it in April, or thereabouts, and grow it on all the summer, when you will have a specimen that for abundance of bloom will be worth going to see at this time next year. See articles on Begonia, by Messrs. Fish and Appleby.

CINERARIA LEAVES CURLING (*F. W. T.*).—The removing them from a cloesish damp frame to an open dry greenhouse is the cause. They like a moist atmosphere. Give a sufficiency of water, and syringe the shelves and foliage for some time at least. See an article to-day by Mr. Fish.

PLANTS NOT DOING WELL (*J. B. H.*).—There is no doubt but you will succeed, even in Liverpool. Your hopes are well founded; for we never knew an instance of a man that was *ashamed*, not *frightened*, at a failure, but who was destined ultimately to succeed. Your fresh, damp, new flue, with a temperature raised from it of nearly 60° in a frosty night, was sufficient of itself to produce some of the appearances you mention,—and, besides, it was at least 15° too high for every plant you mention, except the *Pentas* and the *Gesnera zebrina*. Your second error, therefore, was putting plants in the same house that required different temperatures. To preserve your *Pentas*, place it at the warmest part of your house; if the leaves of the *Gesnera* are still beautiful you may place it beside the *Pentas*; but as soon as it gets unsightly put it beneath the stage, and give no water until it begins to grow again in March or April, when you may pot it, and it will bloom nicely towards the autumn, but your house will be too cold in winter. Before your flue gets nicely set and dried be satisfied with 40° in a cold night, and then you may let the heat rise 5° or 7° afterwards, with an allowance of 10° or 15° for sunshine.

MELIANTHUS MAJOR (*J. W. G.*).—This is an old plant, peculiar for being found almost solely at the Cape of Good Hope and Nepaul. It is a strong-growing tree-like shrub, with beautifully cut milky-green leaves; the flowers are produced in large bunches, but are not very striking. It likes sandy loam with a little peat. It will require much room in your greenhouse to grow it in perfection. It has stood and thriven well against a wall, with a slight protection in winter. In Devonshire it endures the winter in the open border.

DERIVATIONS (*A Clergyman*).—In the same spirit which dictated your criticisms are those criticisms received; and the Editor begs to return you more than common thanks. Will you further oblige him, in strict confidence, with your address, as he wishes much to write to you privately.

SPANISH COCK (*J. N—, 33*).—Our correspondent wishes to know where he can obtain one of the pure breed. *Payne's Cottage Hive* is the best for you; if you write to J. H. Payne, Esq., Bury St. Edmunds, he will supply you probably.

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WEEKLY CALENDAR.

JANUARY 16—22, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Bat appears.	29.643—29.443	33—29	N.E.	—	1 a. 8	19 a. 4	6 34	14	9 59	16
Blackbird whistles.	29.944—29.793	36—28	N.	—	0	20	rises.	☺	10 20	17
Earth-worms lie out.	29.984—29.615	35—31	S.E.	0.55	VII	22	5 a.40	16	10 39	18
2 Sunday after Epiphany.	29.724—29.437	45—27	W.	0.02	58	24	7 3	17	10 58	19
Helleborus hiemalis flowers.	30.199—30.047	30—27	N.E.	—	57	25	8 25	18	11 16	20
Sun's declination 19° 55′ s.	30.380—30.237	34—26	N.E.	—	56	27	9 46	19	11 33	21
Common Dor Beetle seen.	30.485—30.481	36—31	S.E.	—	55	29	11 5	20	11 50	22

ıred from business, I find my best recreation and exercise in my is the opening sentence of a letter now before us, and that sen- resses the experience of a large section of every class of mankind, remotest age to the present time. When Alexander the Great of a Sidonian prince how he had endured the poverty which d him to labour for existence in his garden, the prince replied, aven enable me to bear my prosperity as well! I then had no my own hands supplied all my wants;" and when Domitian ited to resume imperial power, he replied that, if the tempter the cabbages he had planted with his own hands no urgency used to induce him to relinquish the enjoyment of happiness ısult of power. If from the man who pants for rural pleasures om the state drudgery of the crown we pass to the man of the the workshop, we find them both yearning for the same "garden ts;" and in the array of flower-pots on the window-sills of city hail an evidence of the triumph of the good spirit within, which "all gardeners" to the fullest extent of our opportunities; and ally do we reply to a certain querist—"It is *not* too much to say mind which can, with genuine taste, occupy itself with gardening re preserved some portion of youthful purity, and must have during its passage through the active world, its deeper contami-

ve taken a wide bound from the emperor to the artisan, but ıder knows that each intermediate class is characterised by a ardening, and that the evidence is to be found in all degrees of , from a Brixton villa to Chatsworth. No fairer example could ed to illustrate our universal gardenership than Sir William , one of the wisest of politicians, and one of the most accom- of horticulturists. "This negociator," said the Abbé Raynal, s the most celebrated his country ever produced, appears to have able of effecting whatever he undertook:" and no other pane- d be added than this—"His chief maxim in politics was always the truth; and his sense of honour, that it was the only maxim f an honest man." He was the son of Sir John Temple, and 628 at London. He commenced his education under his mater- , the learned Dr. Hammond, continued his studies at Bishop school, and concluded them under Dr. Cudworth at Emanuel Cambridge. From the University he proceeded abroad, and at ıration was chosen a member of the Irish Parliament. In 1665 on a secret mission to Munster, was employed afterwards in the triple alliance between Sweden, Holland, and this country, me resident minister at the Hague, in which capacity he pro- e union between the Prince of Orange and Princess Mary. He ecame Secretary of State, but in the following year retired from is country seat, Sheen in Surrey, where he was repeatedly visited vereigns, Charles II., James II., and William III. He died in the 27th of January. His works have been published in 2 vols. 4 vols. 8vo. In the first volume of them is contained his essay *The Garden of Epicurus; or of Gardening in the Year* 1685. This essay is devoted chiefly to inculcate that taste for formal design in gardening which was the prevailing one of his time. When we compare it with the plan given by Lord Bacon in a preceding age for a similar construction, we find but this difference—that if both plans were reduced to practise, Sir William's would be rather the most mathematical and undeviatingly formal. Sir William Temple's beau ideal of a garden is that of a flat or gently sloping plot of an oblong shape, stretching away from the front of the house, the descent from which to it was from a terrace running the whole length of the house, by means of a flight of steps. Such a garden, he says, existed at Moor Park, in Hertfordshire, formed by the celebrated Lucy, Countess of Bedford, one of the chief wits of her time. It was on the slope of a hill, with two terraces, rising one over the other, and united by a magnificent flight of steps. A par- terre, wilderness, highly ornamented fountains, statues, alcoves, and cloisters, were its prominent parts and ornaments. When he descends to more practical speculations he is seldom in error, among which we may specify his observations upon planting peaches in the north of Britain, which experience has demonstrated to be correct, although Switzer seems to doubt the possibility above 100 miles from London. Sir William improved his knowledge of gardening during his stay at the Hague. He introduced several new fruits, especially of grapes. His name still attaches to a variety of the nectarine; and every one knows the Moor Park Apricot. He had a garden at his seat at Sheen in Surrey, now occupied by Dr. Pinckney, to the good cultivation of which Evelyn bears this testimony:—"The most remarkable things are his orangery and gardens, where the wall-fruit trees are most exquisitely nailed and trained." Nothing can demonstrate more fully the delight Sir William took in gardening than this direction in his will—"I desire my body may be interred at Westminster Abbey, near those two dear pledges (his wife and daughter) gone before me, but with as much privacy and as small expense as my executors shall find convenient; and I desire and appoint that my heart may be interred six feet underground, on the south-east side of the stone dial in my little garden at Moor Park." Sir W. Temple affords another instance of the ruling passion unweakened even in death. Nor was this an unphilosophical clinging to that which it is impossible to retain; but rather a grateful feeling common to our nature. In his garden he had spent the calmest hours of a well-spent life, and where his heart had been most peaceful he wished its dust to mingle. He survived all his children, and the present Lord Palmerston is his heir-male; but two grand-daughters were alive at his death, one of whom married Nicholas Bacon, Esq., then proprietor of Shrubland Park, in Suffolk.

Meteorology of the Week.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 42° and 31.7°, respectively. The greatest heat, 66°, was on the 19th in 1828; and the lowest, 4½° below zero, or 36½° below the freezing point of water, on the 19th in 1838. On 75 days rain fell, and 93 days were fine.

ıave now cheap glass, cheap timber, and cheap

it is, therefore, time to endeavour to neutralize certainty of our seasons by glazed structures; for without the least addition of artificial heat, will the climate, in average seasons, of the south-west ıce." Thus writes Mr. Rivers in his pamphlet, *The Orchard House; or the Cultivation of Fruit in Pots under Glass;* and we need not tell the of our pages that we have been labouring ously in the same good field, and we claim pre- ıce over Mr. Rivers in the ratio of seventeen to ince we have shown how a glazed structure for urposes can be erected for five pounds, whereas vers's orchard house costs seventeen. However, tter is done by workmen, whilst ours must be chiefly by the amateur's own hands.

whichever way erected, every one having a garden, ıd of gardening, should have such a structure; for crease of pleasure and profit which are secured by conceivable by those little cultivators who have never had the aid of such a structure. Not only does it enable them to protect through the winter hundreds of plants which, without such shelter, they could not have to brighten and to vary the brightness of their borders in summer, but it enables them, if they grow fruit in pots according to Mr. Rivers's plan, to defy the spring frosts, those fatal assailants of our fruit blossoms, and to be sure of an early, though not abundant crop, with all that additional zest proceeding from the thought—"These my skill promoted and my care preserved."

Mr. Rivers thus details the erection of one of his orchard houses:

I will suppose that an orchard house thirty feet long is required. A ground plan, thirty feet long and twelve feet wide, must be marked out, ten posts or studs of good yellow deal, four inches by three, and nine feet in length, or if larch poles sixteen inches in girth can be procured, they are quite equal in durability; these latter must be cut in two, and the flat sides placed outwards; these posts or studs, whether larch or deal, must be fixed two feet in the ground firmly, and the ground ends must be charred two feet four inches from the bottom, which adds much to their durability: it

will thus be seen that this, the back line of studs, will stand seven feet in height clear from the surface. For the front wall ten studs, four feet long, must be inserted in the ground one and a half feet, so that they stand two feet six inches clear from the surface;* on these studs, both at front and back, must be nailed a plate four inches by two and a half, on which the rafters are to rest: the studs are thus far arranged in two lines. Now then for the rafters: these must be fourteen feet long, and four inches by two in thickness, placed with the narrow surface upwards, to spare the trouble of "ploughing," to make the rebate for the glass, which is great labour and waste of material. On the upper side of each rafter, exactly in the centre, must be nailed a slip of half-inch board, three-quarters of an inch wide; this will leave half an inch and one-eighth on each side for the glass to rest on,—not too much when the width of the glass is given. We have thus the rafters so far prepared for glazing, but not yet fitted on the plates at top and bottom: they must never be morticed, but let in at top by cutting out a piece, and sloped off at bottom.

To receive the glass at the top of the rafters, a piece of three-quarter inch deal board, six inches wide, must be nailed along the top to the end of each rafter, so as to be even with the surface, and in this should be a groove to receive the upper end of each piece of glass; at the bottom, a piece of board, one inch thick and six inches wide, must be let in for the glass to rest on, and to carry off the water. We have thus so far a sloping roof, seven feet three inches (with the plate) high at back, and two feet nine inches high in front; but the glass is not yet in. The most economical glass is 16-oz. British sheet, which can be bought at 2½d. or 3d. per foot, and the best size, twenty inches by twelve; puttying the laps, as it prevents breakage by frost; placing it cross-wise, so that the rafters must be *about twenty inches asunder*. On and outside the back studs, half-inch boards must be nailed, well seasoned, so that they do not shrink too much; these must be painted white. In the back wall, sliding shutters, two feet six inches by one foot, in grooves, must be fixed, for complete ventilation; two close to the roof, and two about eighteen inches from it.

The front must have also half-inch boards, nailed on outside the studs; one of them, the upper one, to be on hinges, so as to let down the whole length of the house; these, when all open in hot weather, ventilate thoroughly. To add to this, and it is all required in summer, the boards will shrink and let in air: a fierce sunlight is thus admitted by the large glass, and abundance of air, in which all fruit-trees thrive to admiration. So much for the timber and glass; but when one sees that to walk along the centre of the building, which is about four feet nine inches in height, a person must be of very diminutive stature, the inquiry arises, how is head-room to be made? How simple is the answer: make a trench two feet six inches wide, and two feet deep, in the centre of the ground plan; this will leave a border on each side four feet nine inches wide. The bottom of this trench forms the foot-path; its sides must be supported with boards, or with four-inch brickwork. Now, as everything depends on these borders,—for there must be no benches and no shelves—care must be taken to make their surface loose and open: loose materials, such as coarse cinders, lime—rubbish from old walls, or bricks broken into pieces in size from a nut to a walnut, may be laid on them about four inches deep; they may then be forked over to about nine inches in depth, well mixing the above materials with the soil; you thus have two borders not too far from the glass, and *on* which your orchard will thrive admirably. It will appear odd to read about trees thriving *on* instead of *in* a border; but when I explain that this is to be an orchard in pots, it will not seem so contrary to our usual garden culture.

BUILDER'S ESTIMATE.

To ——. An Estimate for Erecting a Forcing House, 21 feet long, 12 feet 6 inches wide, 2 feet 9 inches high in front, and 7 feet 6 inches at back.†

	£	s.	d.
3 feet of oak door sill, 3 by 4, including labour	0	1	6
184 feet of memel fir, for posts, plates, rafters, door-frame, &c., including labour, 3 by 4	2	13	8
26 feet ditto, for 4 corner posts, 4 by 4.....	0	9	9
120 feet ditto, small posts between others, 2 by 2			1½
154 feet ditto, rafters, 2½ by 4			2½
22 feet deal, for top grooving piece, 1½ by 4½			2
22 feet ditto, bottom rail, 1½ by 5½.....			2½
40 feet super. of ¾ deal, for rebates on rafters, facings on ditto, corner and door fillets			3½
336 feet ½ inch deal boarding, and labour and nails			2
21 feet ¾ by 9 yellow deal for flaps to front, with 3 pairs of 8-inch joints, and buttons			0
14 feet ¾ deal ledged door, joints and latch, comp.			0
80 feet 1-inch deal for boarding side of path up the centre, with piles, and labour and nails			4
4 sliding shutters, 2 feet long each, with slides and handles			0
121 square of 16-oz. sheet glass, 20 by 15 inches, with putty, labour, and painting rebates.....			11
	£		

By using larch poles in lieu of squared timber for the studs, a able saving may be effected.

* These respective heights of front and back are a matter of choice; my builder gives six inches more in his estimate.

† The best kind of paint for these structures is Carson's anti-corrosive.

FIGS.—The fig is not a general favourite; but t who like them, as I confess I do, their cultivation orchard house is interesting and most simple.

They may be planted in the compost already mended, and in pots of the same size, top-dressed in syringed in summer, and put to rest in autumn; i exactly the same treatment as recommended for othe Although fig-trees against walls require protection f frost, which would otherwise destroy the young frui is the first to ripen in early summer, under glass, mould perfectly dry, and the shoots thoroughly ripen will be safe from injury from the most severe fros well-formed bush cannot be procured, the tree mus down the first season to within nine inches of its b shoots when they make their appearance thinned ou when these are about a foot in length, pinch off the e four, leaving the central shoot for a fortnight or so gate, then pinch off its end in the same manner: yo will be formed, but you must not expect any fruit season; in succeeding seasons those must be prun same manner that you would if a bearing tree is p and placed at once in the house; *i.e.*, in May or th ning of June, as soon as the young shoots have ma six inches, pinch out the terminal bud of each; make them produce fruit which will give a second c first will be produced from the shoots of the previ The tree will, in a year or two, become too much with young shoots; thin them with a sharp knife, l spurs, but cut close to the main branch or ste require more heat than any other fruit yet mention must have the warmest corner of the house, as the require much ventilation; a house with fire-heat is the most eligible place for them, and they must ha dance of water or the fruit will all drop, when n grown, without ripening. The varieties best adapt culture are, the White Ischia; the Saint Jéan,—l abundant bearers; the White Marseilles; the Whi and the Brown Turkey: if more varieties are requ Nerii and the Pregussata may be added.

We have thus given specimens of the varied of Mr. Rivers's new publication, and they are b fect specimens; for there are much fuller dire the culture of all other fruit-trees in pots, exc as well as particulars relative to brick-stoves fo glazed structures, &c. Indeed, the pamphle cheap as to size, is cheap when we consider t ness of its contents; and we recommend eac readers to forward thirty penny postage stamp Churchwardens, Sawbridgeworth, Herts," who, will send them a copy of the pamphlet, pos Now, if a fourth part of our readers do thi enabled to say that Mr. Rivers's charitable o be accomplished. It appears that the parish Sawbridgeworth, "from causes not proper to tioned here," is in a very dilapidated state, Rivers dedicates the profits of this work, as a tion, towards its repair, which, to use his ow

ıurch of my forefathers, and, I trust, of my ıildren."

ın our readers visit London in June next, for of being amazed and edified by "The Exhi- Nations," we would recommend one day of ight and profit to be secured by a visit to 's Sawbridgeworth Nurseries. If they will the Eastern Counties Railway to the Harlow ey will be within a pleasant walk of a mile nurseries, where they will see, among other he best *Roses* and all the best *Pears* in full and cultivated upon the dwarfing system. ee his mode of protected trellis culture, and, ıll, they will perceive a constant attention to e how everything may be effected most econo- 'hey will find, too, in Mr. Rivers, that spirit ıgh justly proud of the sixty acres now under yet retains, and is pleased to point out, the ınd on which a grandfather began the humble of the family's prosperity. They will be the same time, to forward the charity in buying on the spot a copy of *The Orchard*

NEW PLANTS.

HEIR PORTRAITS AND BIOGRAPHIES.

'LOWER-HEADED PIMELEA (*Pimelea macro- Botanical Magazine*, t. 4543.—This favourite rnamental shrubs, abounding in New Hol- ow containing about fifty species, was named ph Banks and Dr. Solander, who first disco- *ifolia*, on which the genus was founded, when ircumnavigation voyage. The word is from *pimele*, fat, alluding to a viscid secretion of the plant; and *macrocephalus* means large head, referring to the terminal heads of flowers.

The Natural Order under which Pimeleas are placed is that of Daphnads, founded on the Daphne (Thymelaceæ); and having but two stamens and one pistil they fall into Linnæus's 2-*Diandria* 1-*Monogynia*.

Although this genus has long been a favourite one with cultivators, if we except *P. rosea* and the variety of it called *Hendersonii*, we shall find *Pimelea spectabilis* engrossing the attention of competitors at our metropolitan exhibitions. How far the present subject of our biography may encroach on the province of the older favourites, is not within the jurisdiction of the chronicler to say; but, in passing, let us remark that young seedlings, or plants a year or two old from spring cuttings of the old *Pimelea decussata*, are the best stocks to graft the weaker and more scarce species on; and that such grafted plants are more easy to manage than if they were growing on their own root, and we believe they will live all the longer if so grafted; but those who have more acquaintance with spade and grafting tools than we can claim to, can best tell the tale.

Pimelea macrocephala is a greenhouse shrub, introduced by Messrs. Lucombe, Pince, and Co., of Exeter, direct from Swan River. It is about three feet high, *branches* erect, round, smooth, reddish underneath, green above, leaved quite up to the flowers. *Leaves* opposite, leaning to one side, stalkless, smooth, rather leathery, shaped like that of the willow, but broader in proportion to the length, milky green. *Involucre*, or outer flower envelope, of four or six leaves, like those of the stem, but larger. *Flowers* many, crowded together, very pale pink. It thrives best in turfy peat, mixed with a little loam, and well drained.

SMOOTH-LEAVED SPATHODEA (*Spathodea lævis*).—*Botanical Magazine*, t. 4537. The derivation of this stove plant's name is from *Spathe*, the flowers being terminal with a spathaceous calyx. It belongs to the Natural

Order *Bignoniads*, and to 14-*Didynamia* 2 *Angiospermia* of the Linnæan system. It is a native of the pestilential coast from Sierra Leone southwards, through the Bight of Benin, the Ashantee country to beyond the equator; was introduced in 1825, and probably lost without having flowered. In 1846 it was again brought under cultivation, and flowered last summer by the Messrs. Lucomb, Pince, and Co., of Exeter. It is a moderate sized tree in the African tropics, but, like its allies the *Jacarandas*, will flower as a small plant if the ends of the shoots are rooted after the plant has finished its growth, and they are half ripened. There is another *Spathodea* in our stoves, sent over, we believe, by Mr. Whitfield, some ten or a dozen years ago, but which, we think, has not yet been brought into a condition to flower. It is believed to be *S. campanulata*, a splendid tree of from twenty to thirty feet in height, with a rough stem, having a spreading head of branches clothed with long pinnate leaves; the whole tree appearing at a distance much like a palm. When our postal steam-packets are established along the African coast, as they will soon be between Rio, Bahia, and other Brazilian stations, and Southampton, the cultivators of such fine plants as are recorded among *Bignoniads* will find an easier way of introducing them, by pieces of the old roots packed up in sand or mould. These being from old established flowering plants, will, no doubt, flower a year or two after their introduction to our stoves. Even by the present arrangements for communicating with the Brazilian ports, we have often wondered that such men as Mr. Beaton and Mr. Appleby have not thought of this scheme of introducing such plants as are difficult to be obtained by seeds. We are indebted to the former, it is true, for a hint about introducing the top parts of the *Columnar Cactuses* from Mexico and Peru, but our long-cherished idea of thus using the large fleshy roots of trees, shrubs, and climbers, have not engaged the attention of any of our industrious gardeners, and we should be gratified by hearing their opinion of it. They are already aware of how difficult it is to import sound seeds of *Bignoniads*; these are so small, and being entirely destitute of albumen, there is but little chance of ever getting many of them to vegetate after a long voyage.

The *African Spathodeas* owe their name, and all that is known to us of their history, to one of the most persevering botanists of the last century, although his name is not familiar to English ears. Ambrose Maria Francis Joseph Palisot de Beauvois, a French naturalist, possessed of considerable family property, which did not enervate his indomitable spirit of discovery, took advantage of the French expedition to the coast of Africa in 1786, to found a colony in opposition to the English influence in that part of the world, and sailed, at his own cost, with a view to prosecute his favourite pursuits in Benin and the neighbouring kingdom of Oware, where he spent fifteen months investigating the natural history of those pestilential swamps,—swamps which our seamen are now blockading against the slave traders. Here he made a large collection of skins of animals, insects, minerals, and dried plants, a part of which he sent to M. de Jussieu, at Paris, and among which were specimens of these *Spathodeas*. Part he put on board a vessel in which he sailed to St. Domingo, but the chief portions of his collections were destroyed by the English fleet who burnt down the whole of the French settlement. At St. Domingo he increased his collection considerably, and on the insurrection of the slaves in 1792, he was commissioned by the French authorities to the United States to solicit from the government assistance against the slaves. On his return from this fruitless mission, the slaves being masters of the island, his whole collection was burnt in the conflagration of Cape Francois, and himself put in prison, whence he expected daily to be taken out for execution; but he made his escape, and on reaching Philadelphia, penniless, he learned that his name was among the proscribed in France; but nothing daunted, like the late King Louis Phillippe in his adversity, he supplied his wants cheerfully by teaching music and languages until the arrival in the United States of the French Minister, Adet de Beauvois, who soon supplied him with means to prosecute once more his predilections in natural history. He explored many parts of the United States, and on his return to Philadelphia, loaded with acquisitions, he learned that his proscription had been erased, and also that his patrimony had not been sold. Forthwith he returned to France, and arranged his collection, and re-collections, for publication. But that by which he is best known to botanists is his *Flore d'Owaré et de Benin*, in which many extremely curious and rare plants are described from the portion of his herbarium sent to M. de Jussieu, among which are the *Spathodeas*, as we have said, and also the greatest curiosity in the vegetable kingdom, which he called after Napoleon Buonaparte, *Napoleona imperealis*; a plant recently introduced to British gardens, and which was afterwards called after its discoverer, *Belvisia cærulea*; but the prior name must be retained. Palisot d'Beauvois's *Flore d'Owaré, etc.*, was published between 1804 and 1821; and in it the wood of *Spathodea campanulata* is mentioned as that of a middle-sized tree, smelling of garlic. Mr. Ansell, the young botanist who accompanied the ill-fated late expedition to the Niger, says he too had the satisfaction of seeing the *Spathodea* in flower, in different situations; and no doubt some more species are yet to be discovered in the same regions, as well as more species of the *Napoleona* and other plants, which have not been seen by any naturalist except Beauvois. When we reflect on the increased communications between this country and those parts of the coast of Africa where such splendid trees abound, and that pieces of their roots may be as easily brought home as a packet of seeds, and at whatever season of the year they may be met with, we may congratulate our friends on the expectations they may naturally entertain of such acquisitions. Since writing part of the above, we have learned that our plan has been actually in operation for some years between Sydney and London. The large roots of the Australian Waratah (*Telopea speciosissima*) are said to endure a four months' voyage if well packed in strong wooden cases full of soil. We ourselves have had four cases of plants, large shrubs, from a friend in South Carolina, by way of New York, and they were two months on their way to London; and on their arrival we thought them dead, although the soil in the cases was moist, and said to have been kept so throughout the whole journey. On the advice of a skilful gardener, however, we examined the roots, and found them quite fresh, and plants have been reared from them; but the whole turned out common things, which we might buy at a hundredth part of the expense of the carriage at the nearest nursery.

Spathodea lævis has a woody but soft *stem*. *Leaves* mostly alternate, leafleted, leaflets opposite, pointed egg-shape, with large-toothed edges, smooth, and stalkless. *Flowers* in a bunch, or panicle, at the end of a branch, with white pink-streaked corolla, funnel-shaped, irregularly five-lobed, so as to be obscurely two-lipped; calyx green, tipped with red, channelled, and split down one side; stamens four, with an abortive fifth surrounding the pistil. It is raised from cuttings in sand, under a glass, with bottom heat. It prefers a light rich loam.—B. J.

THE FRUIT-GARDEN.

PEACH FORCING.—This is an excellent period at which to begin forcing this noble and luscious fruit, which will thus be ripe by the beginning of June; and, by good management, continue in succession until the middle of July. We have said, noble fruit; for, notwithstanding

the amount of dignity possessed by the pine-apple, and the great antiquity of the juicy grape, they can scarcely claim a pre-eminence even in appearance on the dessert or the exhibition table.

We may presume, that peaches for early forcing are plants within the house, and that its wall is on arches. Peaches or nectarines in pots will, of course, require at least a similar course of atmospheric treatment; we need, therefore, give no separated detail of proceedings as connected with them, but may just observe, that when thus situated they may enjoy one advantage which those planted out seldom can—the advantage of a slight amount of bottom-heat. Those who have early vines in the commencement of forcing, frequently avail themselves of the chance offered of introducing a body of fermented material within the house; and this serves to plunge various pots in, which are just commencing the first stage of forcing. This is very good practice; for, somehow, we have not so genial a warmth from either pipes or flues, although a good provision be made for producing atmospheric moisture. One thing is certain with fermenting material, namely, that any amount of heat which the fermenting material may evolve, will certainly be accompanied by a good proportion of atmospheric moisture, together with the stimulating gases of the manure, which most practitioners adjudge to have an influence on the bursting buds. The manure may be introduced fresh from the stable door, provided no plants possessing foliage are in the house; the rank steam from the reeking manure will go far to extirpate insects; and with a turning or two, and frequent waterings, it will be perfectly harmless by the time the vines, &c., have budded. In such a situation, vines in pots, figs, cherries, peaches, with roses, lilacs, and other flowering shrubs may be partially plunged for the benefit of bottom-heat; which, however, should not exceed 75° at the depths the pots are placed. When the buds are developed, the pots will require removal to a lighter situation.

We will suppose, that the peach-house is established with trees in a tolerably thriving state; that they were forced last year, and introduced for a somewhat early forcing annually; the borders inside the house, if the previous management has been proper, will be tolerably dry, and water must be administered liberally. Previously, it is well to remove all the loose-looking soil, which the surface of a peach or vine border annually presents if dry. This may be lightly swept away; and the process we are about to recommend exactly accords with the "*top-dressing*" or "surfacing" of pot-plants. The fact is, the surface of soils subjected to dryness through artificial heat, becomes, after a time, what is commonly termed exhausted—its organic structure reduced to a powder, and all its manurial properties dissipated. Such is well removed, and replaced with chopped turfy loam and manure blended; and this compost may be an inch or two thicker than that previously removed. On this our practice has been to lay about three inches of half decomposed manure, leaf soil, &c.; and this completes the top-dressing affair.

And now comes the *watering:* this must be done a little at a time, for if the border be very dry, much water will escape at first in the fissures created by dryness. Clear water, of the temperature of 90°, may therefore be applied two days successively; and the third day we would give liquid manure, clarified, at the same temperature. If no other kind is at hand, three ounces to a gallon of the best Peruvian guano will make an excellent liquid dressing.

All is now ready, so far as the root is concerned; but we must inquire a little concerning *the branches.* If these have not received a dressing of any kind, they must have one; not only as a destroyer of the eggs of insects, but as a preservative. Our practice is to beat up two ounces of soft soap in a gallon of tepid water, then to add three pints of fresh lime, and three handsful of sulphur. This is all well beat up, and in addition, the mixture is kept frequently stirred during the application. Every branch and twig should be well painted with this mixture; and the trees being properly pruned previously, may now be carefully trained, and all is ready for the commencement of forcing.

The properly awakening a deciduous tree or shrub from a state of repose, is not a thing however to be dated from any given day; much caution is necessary in the first approach towards a stimulating *temperature.* The first part of the process is to merely shut the house close, and to preserve a constantly moist state of atmosphere; in fact, to imitate one of those fine growing days in spring, when primroses love to unfold their buds, and birds to collect materials for building their nests. Frost must of course be excluded, and until the buds begin to open, the day thermometer may range from 45° to 55°, and the night from 40° to 45°; an advance of 5° may be allowed in sunshine.

Slight *syringings* morning and evening may be resorted to, but we would rather depend chiefly on securing a certain amount of atmospheric moisture in the air by other means; fearing lest the syringe should too soon wash off the dressing; however, a fine rose may be put on the syringe.

In about a fortnight or so, the blossom-buds will begin to show the tint of the corolla or petals; and now a slight increase of warmth may be permitted, and shortly the amount of dampness must be decreased, especially in the day-time. Still much caution is necessary: it must be remembered that the bud requires a given time, in which not only to burst its envelope, but to progressively *enlarge*, until the corolla and all the other parts attain their fair proportions; and nature will not be driven with impunity beyond a given rate.

The *blooming period* having in reality commenced, let a somewhat liberal amount of artificial heat, if really necessary, be kept up during the early part of each day, in order to enable the operator to ventilate liberally; for this is most conducive to the free setting or impregnation of the blossoms. And now the thermometer, by artificial heat, may range from 55° to 65° daily, provided a very free ventilation may accompany it. During sunshine the thermometer may rise to 70°, which heat we should not think it expedient to exceed; we would rather increase the air. Still, at night, descend to about 45°, and apply moisture liberally about floors or other *cool* surfaces—but no syringing. Thus the blossom-buds in their various stages will, in ordinary parlance, "feed," or, in other words, will absorb, so as to open with renewed vigour during the ensuing day.

In another week or so, *the young fruit* will be seen peeping from the point of the husk or decayed corolla which encases them, and the bonds of which they must be enabled to burst. And now it is that the true condition of the root action can be pretty well ascertained. If they are many days struggling to get free, it is a sure symptom of a sluggish action of root; on the contrary, fine fresh trees in their prime will soon enable their progeny to escape.

Now must some slight modification take place in our gardening tactics; now a less amount of ventilation being requisite, less artificial heat will be necessary. A moistened atmosphere is now particularly required, and syringings must be resumed. As for temperature, persist in sustaining in the day 55° to 60°, and at night 45° to 50°. With this heat rest contented; in sunshine let it rise to 75°, provided a circulation of air is established with it. On dull days it is not objectionable to syringe, not only morning and evening, but also in the course of the day, if the air feels dry; this will enable the young fruit to escape from the dead corolla.

When once this is cast, all will be straightforward as concerns the fruit, and we must now direct our attention to the young shoots, which will soon be ready for *disbudding*, for such must commence when they are about two inches long, in order that it may be done progressively; for we would have this process to run through a month at least, doing a little every three or four days. Strong and youthful trees which have not done much work, will produce abundance of foreright shoots. Such are not essentially different in character from the rest, it is merely in the amount of luxuriance they possess, which inclines them to assume a bolder position than the rest. Some of them are the central buds of groups, formed on robust shoots of the preceding year, and as such, by their very position, become forced outwards.

Most shoots of this character are not only somewhat ineligible from the direction they take, but they too frequently produce wood of a watery character. These, then, are generally disbudded, some at one period, some at another. In the first disbudding a few of the most conspicuous only should be removed, repeating the same on others as they become manifestly in the way; reserving, however, even shoots of this character where blank spaces are likely to occur.

We have before said, that the disbudding should extend over some four or five weeks; and thus it will, in fact, scarcely have ceased up to the period when the fruit commences "*stoning*," which period may be easily known by the fact of the fruit becoming suddenly stationary. All this time there will be no occasion to deviate much from the temperature already prescribed, except in the case of sunshine, when, as the light increases through the natural advancement of the season, so may the solar heat be allowed to accumulate. Let us, however, be guarded; the word *accumulate* must be qualified: we do not mean that it must be permitted to interfere with the necessary ventilatory proceedings.

Our readers will doubtless remember some old-fashioned advice given in previous pages, not on the subject of fruit alone, but advice which our clever fellow labourers, Messrs. Fish and Appleby, as workmen cunning in artificial climates, do not hesitate to advise occasionally, for their pets of the floral world. Greater liberties may be taken with the enclosure of solar heat in the afternoon than in the forenoon, or at least that such is found by experience to be the case in hothouses, on account of the obliquity of the solar rays. During the stoning period, it is well to be very cautious in the case of artificial heat, or, indeed, of a sudden and great excess of natural heat. The fact is, that "force" as you will, it requires both a given time and a certain order in the elaborative system to complete the organization of the seed. Regular syringings, as before, must be kept up morning and evening; for it will be required even as antagonistic to the red spider.

We must here advert to a most important point, lost sight of since we spoke of the commencement of forcing. This is *root management*. It is barely necessary to observe, that the border will require watering occasionally, and that the water should be applied warm, and enriched with manurial matters if necessary. If applied at a temperature of 90°, it will prove stimulating to the root, for this ninety will be reduced to seventy immediately by the body of the soil. The quantity applied must be determined by the openness of the soil and by the energies of the trees. This no man can determine without seeing the trees. We may just remark, that if the border is well drained, and the soil free, they will take water liberally almost weekly. As soon as the fruit begins to change for ripening, a less amount of water must serve, but air in abundance must be given night and day, if high flavour and good colour are desirable. We will conclude with a few good maxims.

HEAT.—Through every part of the process, only use artificial heat as a necessity. Let all real advances be made under the influence of increased light. Beware of high night temperatures: we have had a thermometer at from 38° to 45° during the first swelling, without any perceptible harm.

AIR MOISTURE. — Never permit the atmosphere to become dry at any time. A somewhat dry and mellow state of air is requisite at blooming time, and more especially whilst the fruit is ripening. A dry air long continued, will be almost certain to produce red spider. Beware, however, of much moisture with very low night temperatures.

DISBUDDING.—Not only disbud frequently, but at all times pinch off the points of shoots which are growing too luxuriantly. Disbudding should be completed by the time the stoning process commences, if possible.

RIPENING PROCESS.—The slower peaches are ripened, the finer and higher flavoured will be the fruit. Those who think to increase the size and appearance of their fruit by a close course of treatment, will find themselves miserably mistaken. R. ERRINGTON.

THE FLOWER-GARDEN.

BANKS. — Kitchen gardeners write and talk about sloping banks, and flower-gardeners about rockwork, or rockeries, for such and such plants, but I cannot recollect of any one who has written about banks for flowers: and yet few large flower-gardens are without a bank of some sort or another; and I believe the first preparation for a rockery is a bank of earth to lay the stones or boulders on, in various ways; but, I confess, I know very little about making rockwork. I never yet saw one in a garden that pleased me, except one, and that one was certainly very good of its kind. It was in the Surrey Zoological Garden—a view of the old town of Edinburgh, and the rock on which the castle and barracks stand was imitated very cleverly; I never saw so good an imitation before or since. But, after all, if one had watched the raven or the eagle's manœuvres, building its nest some two or three hundred feet above one's head, on a ledge of rock, as I have done more than once, a chapter on banks might be supposed to be more in the gardener's way than one on artificial rocks.

Some years since, I had charge of a bank, which was both useful and ornamental. It was made on the flat, and in a flat part of the country; and it could not be mistaken for a natural bank. It was made of a large quantity of clay that was taken out of the bottom of walks, or where new walks were to be made; and the expense of carting it away was thought too much, and that was the reason why it was formed into a useful bank. I have often thought since, that if ever I had anything to do with new ground work in a garden, when more earth of any kind was on hand than could be disposed of on the spot, the cheapest and easiest way to get rid of it would be to heap it up into some kind of shape to train fruit or flowering plants against, after the manner of the original bank from which I got the first idea. Unless in a case of this kind, I do not think that I would strongly advise the formation of this sort of bank which I shall now describe; but there is a second kind of bank—of which there is a very good example in the flower-garden here—that one might often make at little cost where alterations were going on, or new gardens being formed,—and even at times when no such opportunities offered. The first bank was of stiff clay, as I have just said; it ran right north and south, and formed a division between two different styles of gardens; I forget the exact width of it at the bottom, but I think from ten to twelve feet might be the width; from this bottom the two sides were formed exactly like the steep roof of

a house or barn; but I forget the angle of steepness also, but that does not signify much, any angle of from 30° to 60° would answer just as well, or if we say the common angle of 45°, it will answer very well; and any width at bottom, from ten to twenty or thirty feet, according to the quantity of soil on hand, would also be as proper as any other. Indeed, a whole system of cellars above ground for holding ice, potatoes, fruit, roots, tools, and what not might be made close to one's premises, in this fashion, cheaper than any other way that I can think of just now: by first building a vault or arch of ordinary dimensions, and then covering it over with any thickness of earth, bringing it to a ridge, like the roof of a house, with a door at one or both ends, which might be hid by shrubs. Let us suppose that a rising piece of awkward ground is in one's way, and that with a little contrivance it might be formed into a kind of ridge,—no matter in what direction, we shall find some ornamental plants to cover it; a bank of some kind being determined on, and that we mean to use it for training evergreen roses, or other climbers, all over it, the proposition is reduced to the mere routine of executing the work as effectually and as cheaply as we can.

At the time the original was made, it was a common belief that black surfaces were more warm and congenial to fruit trees than any other; therefore, both sides of the bank were covered with dark slates, lapping over each other, but not so close as in common roofing; and over the slates were placed horizontal lines of stout iron wire, as they do sometimes against fruit walls; these lines were a foot apart, and were held three inches from the slate by iron supports driven through the slate into pieces of oak wood let into the bank. Peach and apricot trees were trained against the west side of the bank, and plum and cherry trees on the east aspect, and the whole answered very well indeed. But for the new bank, I mean better things than peaches and plums (with Mr. Errington's leave), and for much better gardens than cabbage ground (if Mr. Barnes will allow it so): nothing except the very best flowering climbers shall I admit for my bank; and we shall have no slate covering either, only a concrete surface and a trellis of some sort. Gardeners know, full well, the value and use of concrete in these days, although we have been loth to write much about it yet. Let us now suppose that a ridged bank has been finished after the manner here intended, the soil equally pressed on all sides, forced into a sharp ridge, and smoothed down with the back of the spade; if left in this way, and uncovered, it would soon crumble away, with the changes between rains and frost, therefore we must cover it with the concrete to keep it safe. But, first of all, supports for holding the trellis should be fixed at stated intervals in the bank;—nothing is better than pieces of dry oak scantlings, two or three inches square, and a foot or fifteen inches long, with sharp points to be driven into the bank so as to have the ends flush, or even with the surface, six or eight feet apart in the horizontal direction, and about a foot apart up the bank; or, if it was thought sufficient to use lath-like strips of wood instead of wire, the ends of the oak pieces should stand out, say three inches from the bank, and be rather nearer to each other in the horizontal lines than for wire. An inch of concrete, which will be quite sufficient, would then reduce the distance of the trellis from the bank to two inches; which would be about the right space to allow a current of air between the bank and the plants, and still to allow them to be so near as to get the benefit of the heat from the bank.

All this being settled, a quantity of very fine or sandy gravel, or, what is still better, a quantity of fine sifted coal ashes must be had for making the concrete. Some lime, and if the lime be strong, that is, stone lime, one barrowful of it to eight barrow-loads of ashes will do; and if it is chalk lime, one to six will be better. These are to be mixed as they mix mortar for bricklayers, and to be made nearly as soft, and then to be spread all over the bank, beginning at the bottom and plastering it on all the way up. A handy man will soon get into the way of doing it properly, after a trial or two; and he may lay it on much thinner than an inch, if the concrete is made of the proper softness. A trowel, or a plasterer's tool, would do the work neater than an old spade; but, for want of a better tool, such a spade would do; and, in either case, the tool should be occasionally dipped in water, and then run over the surface, to give it a very smooth or glossy touch. About the end of April, or when hard frosts are over, is the best time for this concreting; for if the weather is too hot or dry, the concrete will dry unequally, and then crack; and it is a good plan to look over it after a day or two at any time, to smooth down any cracks with the back of the spade. After the concrete is perfectly dry, a single coat of gas tar run over it, either hot or cold, will preserve it from the frost for a long time; and then after fixing the trellis, the whole is fit to be planted. If iron holdfasts are preferred for holding the trellis, let them be four inches long, sharp as a nail at one end, and an eye hole in the other to pass the wire through; these holdfasts are let into the oak pieces with a gimlet-hole; they need not be very stout, a little thicker than a pen-holder will do. In a clay country, or where three inches of clay worked to a soft paste could be made cheaper than this concrete, that would do equally well for covering such a bank; and if the bank is made altogether of clay, the outside ought to be worked with soft clay, so as to get a smooth surface; and when the clay is quite dry on the outside, and has done cracking, and the cracks are smoothed over, the whole surface must have a coat of the gas tar in the same way as the concrete. The cheapest way to get at the tar is to borrow an old tar-barrel from a neighbour, when you have not one already at hand, to send it to the gas works, and tell them to measure out so many gallons. I forget what they charge for a gallon, or what quantity of surface a gallon will cover; but I know it is very cheap. A reverend gentleman in the next parish to us has used quantities of it—I think he told me for twenty years past,—and he strongly recommends it; indeed it was through his strong advice that I first took to it this way. He told me, moreover, what few people are aware of, that it is best used cold, just as it comes home. Some of his glebe lands are stiff clay, and he has it used for walls, banks, paths in the dry; and I think he told me he was going to floor his coach house with a layer of clay thus prepared, and to give it a coat or two of the cold tar; and, from some former experiments, he was confident of as good a bottom as if he used the asphalt instead. He reads this work, and if I have erred, or want more instructions about it, I am quite sure of being put on the right way. What I have used of it was just in the manner here stated.

This bank, which I said was in the flower-garden here, has often been admired; but it is on a different plan altogether, having only one sloping side, and that full to the south. It was partly cut out of the natural ground, and the rest added to the top, to form the side of a terrace; the length of the slope is nine feet, and the angle of inclination 45°. It is trellised and covered with roses, and has been in use now twelve years. At the time it was made, concrete was not in use, except as foundations for buildings; and we never had this bank quite to our liking, till it had been concreted and tarred, as I have just said; but since, it has answered all our expectations. Now, this last kind of bank might be made in very many places at very little expense. Suppose a natural bank, or broken piece of steep ground, anywhere within the pleasure-grounds—and I have known such places to be eyesores—reduce it to an even

surface, and have it covered with concrete or clay, as above; and no matter what the length of the slope is. Some of the very strong climbers, in a good border at bottom, would cover it in time. Another way has occurred to me, but I never tried it; the former, or two-sided bank, might be made without meeting the sides in a ridge at the top, but stopping short when they came to within eighteen inches of each other, to form a hollow border there, and to plant a line of half standard roses along the top; so that one might have a whole mountain of roses in little compass. I shall furnish a list of best climbers for these walks in my next. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

HAVING last week alluded to some of the principal considerations to be kept in view for keeping plants healthy in dwelling rooms, I shall now specify a few which will best reward, and which most demand attention at this season, placing them into groups, though without any great degree of particularity, so that those who have several windows may have something different in each, while those whose space is more limited may choose for themselves.

1st. There is the bulbous group, foremost in which stand the *hyacinths*, both for beauty and fragrance. Some first-rate kinds have been named at different periods, and those who are particular with regard to scarcity and novelty must pay for them; but fine flowering bulbs may be procured at a cheap rate. The distinction in most catalogues as to bulbs that will flower best in glasses and in earth, is one of those wonderful trade secrets that growers need not trouble themselves about; as, if they obtain good bulbs, they will bloom well in either water or earth, though those grown in the former will require more care, when they have done flowering, to get any good from them afterwards. Under proper treatment, the strength of the flower-stalk will chiefly depend upon the quantity of organic matter stored up in the bulb. Hence inattention to the foliage of bulbs after they are forced, is the chief reason why they do no good afterwards; and hence, too, the reason why the finer and plumper, with stored up matter, the bulbs are, the better will they bloom in small pots and glasses. The secret of success consists not in this or that compost—this or that number of grains of stimulating, enriching material in the water, though these have their importance—*but in having the roots in advance of the flower-stem and leaves.* Thus, other things being equal, the sooner that bulbs, intended for forcing or merely growing in the greenhouse or window in winter and spring, are potted in the autumn, and slightly covered and plunged, the better they will succeed. The heat in the ground is upon an average, higher than the atmospheric, and thus roots are formed plentifully before there is much expansion of leaves; so that there is no want of nourishment for the flower-stem and leaves when free growth takes place. Hence those who did not pot early, and yet want early bloom, may obtain their wish by forming a slight hotbed out of doors, plunging their bulbs in pots in it, and covering them merely as much as will exclude frost. Any light soil, such as sandy loam and leaf-mould, will grow them admirably, if supplied at times with weak manure water. A 3½ or a 4-inch pot is quite large enough; and if to be flowered in the pot, most of the bulb should be covered, to prevent the perspiration [illegible]. The same rule applies to those grown in glasses, though I never saw any advantage in so growing them, beyond getting rid of saucers for pots, and enabling the little ones, who cannot be gardeners [illegible], to learn all about roots and their propensities [illegible] genera[illegible] [illegible] [illegible] [illegible] [illegible] other week I noticed a great many hyacinths and other bulbs in rows, in glasses, in windows, just beginning to grow, while several were rotting and moulding at their base. This casualty might have been prevented by not allowing the water to touch either the bulb or the roots, until the latter were one-third of an inch in length.

A quicker return, if not a much more luxuriant appearance, would also have been effected, by keeping the glasses at least in the dark until the roots were plentifully produced. A little extra attention would also be rewarded; such as keeping the bulb free of the water, using the water in a warm state, say from 60° to 80°, stuffing round the bulb some cotton wadding or green moss—the latter, if fine, need not be removed—and wrapping the glasses in cotton wadding, or any non-conducting substance. Treated in this manner (except that when roots are produced, the water must not be above 60°), and then taken to the window, they will frequently beat those set in a window at first, by a fortnight or three weeks. The water, upon an average, should be changed twice a week; and a little broken charcoal put in each time will be an advantage. Where there is the advantage of a hotbed, many bulbs from the first potting in October will now be in bloom. Where successions are wanted for glasses, they should always be grown in pots; and they may easily be removed at any stage, even when in bloom. All that is necessary, is, to turn the plant out of the pot, place the ball in a pail of water slightly warmed, gently squeeze it with the hands, when all the earth will fall away without hurting a fibre; and, with a little care, the bulb will be as safely dropped into the glass. Glasses have been made of various colours, and, of late years, are much improved in shape; while they can be obtained of all sizes to suit narcissus, tulips, as well as even crocuses and snowdrops; and yet, pretty as they are, it requires no spirit of prophecy to foretel that all such stilted contrivances will be banished for neat vases and baskets of tin, iron, porcelain, china,—and why not of glass? the plants being grown in small pots, and plunged either with or without their pots in moss, the surface-covering being as green and interesting as possible. The whole, or a part, may be replenished at pleasure, as whenever one plant begins to decay another will be substituted in its place, while a great amount of labour will be saved. Those who once try the method will never again resort to glasses, except from necessity; the groups will be so engaging, whether consisting of one or several families.

The same remarks apply to the other members of the bulbous group. The *Narcissus* merely requires pots an inch or two larger; and the following are the most beautiful and best for early flowering—*Grand monarch, State's-general, Soleil d'or, Double Roman,* and *Paper-white.* Of *early Tulips*, I may mention the single and double *Van Thol, Tournesol, Double-yellow, Marriage de ma fille, Rex ruborum, Royal standard,* &c., &c. These may be planted three or four in five or six-inch pots, if to be bloomed in them; but four-inch pots, if to be plunged into vases, as it is advisable to have them in as little room as possible. *Jonquils*, single and double, may be treated in a similar manner. *Crocuses*, all the colours; and *Snowdrops*, single and double, may be grown by themselves, or as an edging for higher growing bulbs in vases. For the latter purpose, half a dozen bulbs may be grown in four-inch pots. These latter do not force well. In fact where there are plenty of them, it is best to lift them out of the ground carefully, as growth has commenced.

There are a few other hardy little bulbs which, if so treated, would be very ornamental to our windows in winter and spring; a few of which may be mentioned: Red—*Erythronium dens canis rubrum, Corydalis bulbosa, cryptiflora, Scilla bifolia rubra.* White—*Erythronium dens canis album, Scilla bifolia alba, Ornithogalum fimbria-*

eucojum vernum, L. tricophyllum, and several sorts *cissus*. Blue—*Scilla sibirica, amœna*, and *bifolia*, *ema cœlestinum;* but the last requires a frame er. Yellow—*Eranthis hyemalis, Narcissus pumilus*, and *Bulbocodium*. Purple—*Bulbocodium vernum*, *ema purpurascens*. Various coloured—*Iris retituberosa* and *persica*, and varieties.

Dwarf Herbaceous Plants.—Those worthy of place are the Russian, Tree, and Neapolitan all which will now be beautifully in bloom, if from cuttings last May, planted out during the ır, and potted in the end of September. *Chinese ses*—red and white, from seed sown in May. *ien*—all the varieties; of *Persicum*, the prettiest and st. The treatment has often been given. Beware of ing them with water. If not fresh potted in the n, top-dress with rotten old cow-dung. To these e added such hardy plants as *polyanthus*, single uble; and *primroses* of all colours, single and ; *Anemone hepatica, nemorosa* or *flore pleno*, and es of *Daisy*.

Taller Herbaceous Plants.—*Cineraria*. Of uckers taken off in the end of July or the beginning gust, or seed sown in May, and not overpotted, ave supplied flowering plants. If from suckers, om kinds with the *small round leaves*, such as the . Henderson are so successful in raising; if from hoose those with the smallest leaves. The more et the plants, the easier will they be kept in a r state; the larger and fleshier the leaves, the rill they suffer in a dry room, besides taking up more space, and requiring more water. *Scarlet ums* propagated late, and kept from flowering the summer. *Geranium Unique*, which will pro- ts deep purple flowers all the winter, should be in the spring previously, as it is rather shy to strike autumn. *Calceolaria—Kentish Hero*, struck late, l during the summer, and potted and encouraged tember. *Ageratum mexicanum*, dwarf, and *Salvia* , the variegated-leaved variety, struck under a ight in July, and grown on. With the exception of *vernus*, and *Tussilago fragrans*, and *palmata*, the of which many admire, there could be little help ed here from hardy plants, except some nice *wall-*.

Shrubby Plants.—*Daphne odora rubra, D. variegata;* the latter blooms in the beginning of , the former in winter and spring, and is a most le window plant: one bloom will deliciously room. These are generally grafted and budded common spurge laurel; the rubra I have not much headway with as respects growing it luxu- , though Mr. Wood, of the Bedford Nursery, stead-road, the most successful propagator and cul- of it I have seen, says there is nothing particular management; and with him, with apparently sh treatment, it thrives amazingly. The *Otaheite* and the *Seville orange* from cuttings. *Coronilla* , *Cytisus racemosus*, dwarf stubby plants, with the chief thing is to keep them free of red spider summer, and getting them in doors before frost. ble white and a double red *camellia*, a few *China* otted in summer, and pruned in autumn, and if s given to air, a *heath* or two, such as *Erica oreana* and *Linnæoides*, and several *Epacrises*, as *sa*, and *nivalis*.

Plants with interesting Foliage, such as oak- , cut-leaved and curled-leaved *Geraniums*, along hose whose foliage is delightfully scented, as *Prince nge, Citriodora, C. purpurea*, &c.

Variegated-leaved Plants.—I have mentioned ariegated-leaved *Salvia fulgens*, a small plant is retty. The foliage of the *Coronilla glauca varie-* s also very pretty, and the flowers are as fine as in the species. Some kinds of double wall-flowers have fine variegated foliage. Many others will at once suggest themselves; in fact, from the *geranium* family alone an interesting group might be formed of variegated-leaved plants,—some cut, some round, others cupped, and others nearly plain, like little Dandy. As coming under this division may be mentioned the *Saxifraga sarmentosa*, a regular old woman's window plant, but not the less interesting on that account, when suspended from a basket stuffed with moss; its runners festooning themselves in several generations at all periods; while in the beginning of summer many are studded with their neat white blossoms.

7th. A Succulent Group.—I am not aware of any very striking plant that will be in bloom at present, and suit a window, except *Epiphyllum truncatum;* and where there was no house, it could only be made to do so by nearly *roasting* it with sun-heat against a wall or paling, from July to the end of September. *Speciosa* would also bloom if treated in a similar manner. The whole of the *Cactus* group, and also the small *Aloes*, and *Haworthias*, and *Mesembryanthemums*, &c., may be *kept* in such a position, and will reward you with bloom during the summer, if properly managed; and the chief point is merely to sponge the foliage now and then, but to give *little* or *no* water from the end of October to the end of March. During this dry period they will also endure a considerable amount of shade without injury; but when growing, not a ray of light should be *missed*.

8th. Here may be included the principal plants for spring and summer blooming, such as *pelargoniums* cut down in July and August, fine *calceolarias* raised from cuttings, succession *cinerarias*, which ought to receive the greatest attention of all with regard to light, turning the plants, watering, &c.

9th. Store-pots for the Flower-garden.—These will also require a fair amount of light and air whenever the outside temperature is above 38°, and just as much water as will keep them from flagging. As far as space will admit, every bedding out plant may thus be kept; but the less *fire* that is seen in the grate the better.

10th and last division will consist—Of Deciduous Plants, such as *fuchsias*, all manner of *bulbous* and *tuberous plants* which die down to the surface, and many hard-leaved evergreen plants, such as the *myrtle*, all of which, with the exception of the evergreens that should be placed in the light on fine days, will stand safe, until growth has commenced, in stables, cow-houses, cellars, garrets, empty rooms, or in any place where you can prevent the frost getting at them. The soil should only be slightly damp, in opposition to being powder dry.

Some will say, "You will poison us with so many plants." This opens up a large question; I would merely say, healthy plants in dwelling rooms promote health and cheerfulness in their possessors. Introduce them sparingly into *bed-rooms*, especially if in bloom; and if not removed, let them stand upon the floor at night.

R. Fish.

HOTHOUSE DEPARTMENT.

STOVE CLIMBERS.

Combretum purpureum; Madagascar, 1818.—This is a truly elegant plant, with handsome opposite leaves, and terminal racemes of bright scarlet flowers produced in succession from June to October. There are few plants that surpass this when in flower. Though each flower is individually small, yet from the great number on each raceme, and the elegant feathery-like appearance they make, every beholder is struck with admiration. It is, indeed, a beautiful object amongst other fine things. Where there is room to cultivate it no plant is more worthy. 3s. 6d.

C. LATIFOLIUM (Broad-leaved C.); Sierra Leone, 1824.—Though not so elegant a plant as the preceding, yet this species is a very fine one. The foliage is much larger, and the racemes of flowers much more dense, and of a deeper colour, approaching to crimson, but not numerous like those of *C. purpureum*. 5s.

C. ELEGANS (Elegant C.); Brazil, 1820.—This is described as a very fine plant, but it is very rare, if it be at all in cultivation.

There are also several new Combretums, introduced from Africa by Mr. Whitfield, named *C. accuminatum*, *C. Pinceanum*, *C. volubile*, and some others. They are cultivated at Pine Apple Place, but they have not yet flowered. They have all handsome foliage, and we hope will soon produce blooms, when we shall report upon their merits. We are not aware they have flowered elsewhere. Should that have taken place anywhere, we should be obliged by any information as to their qualities, mode of flowering, colour, &c.

Culture.—The best way to cultivate these fine climbers is to plant them out in a border in the stove, or, if there is a bark pit in it, to build a square pigeon-holed pit in a corner of the large one; two feet square, or even eighteen inches, will be a suitable size. Train them up an upright pillar, and then either up the rafters or on chains hung up in festoons lengthwise of the house. They may be grown in pots and trained to a trellis, but they do not then thrive or flower at all satisfactorily.

Soil.—The compost should not be too rich. Three parts peat, one part loam, and one part leaf-mould, will form a compost that will cause them to grow moderately and flower abundantly.

Summer Culture.—The only care they require in the warm days of summer is to give them a proper supply of water at the roots, taking care, whenever it is given, to bestow a sufficient quantity to moisten the soil quite to the bottom. When not in flower in the early part of the season, a free use of the syringe will be useful, both to clear the dust and dirt from the leaves and to prevent the attacks of the red spider. Tie in the rambling shoots occasionally, but not so tight or close as to give a bundled appearance. The training of climbers, either in the stove, greenhouse, or the open air, is a work that requires considerable taste and skill. They should not appear wild and uncultivated, neither should they appear clipt and shorn like a well-kept box-edging: the medium between the two extremes must be constantly kept in view. The habit of each species should also be considered. If the flowers are terminal—that is, appearing at the ends of the young shoots—they should not be shortened in; but if they spring from the axils of the leaves, all the weak shoots may be pruned away, and the strong ones will produce the finest flowers, and have more room to display them.

Winter Culture.—As soon as the blooming season is over, the climbers ought to be considerably pruned in and thinned. This operation serves two purposes—it strengthens the plants, enabling them to grow stronger the following season, and so produce more and finer flowers; and, also, this pruning by thinning the branches allows a greater quantity of light to reach the plants below, and that at a season when light is most needed. Whilst the climbers are loose and being pruned, the branches and leaves that are left should be thoroughly washed with a sponge, and every cranny and joint cleansed out, so that all eggs of insects, as well as any living ones, may be completely destroyed. When this is well done the branches may be pretty closely tied in again, and will then require little more attention till the spring.

Propagation by Grafting.—The first species does not easily strike from cuttings, but is usually grafted upon some other readily-rooting species for stocks to graft on. . . . *Pinceanum* . . . and it answers well.

The best month for grafting is March. The stocks should be the same thickness as the scions, and the mode of grafting suitable for them is what is known as the whip grafting. It may be described thus: the stock is cut down near to the soil, a side piece is cut off sloping upwards, the scion is cut in a sloping manner downwards, the two are fitted together, especially the two barks, which should exactly fit each other, then with the very sharpest knife make a slit downwards in the stock, and one upwards in the scion (this is called tongueing); fit the tongue of the scion into the slit of the stock, fitting the two barks together, then immediately tie them pretty tightly together, either with bass mat moistened, thick cotton, or worsted thread; a small ball of clay well wrought may be then neatly fitted round the graft; but this is not absolutely necessary, because the grafts will take without it in the situation where they should be placed, namely, under a hand glass upon a heated bed either of sand or ashes.

By Cuttings.—The rest of the above species strike easily by cuttings, managed in the usual way, in sand under a bell-glass in heat.

Insects.—These plants have the usual number of plagues in the shape of insects. Perhaps the most troublesome is the *White mealy bug*, at least it is the most difficult to get rid off. We were assured by a gentleman a few weeks ago, that he had got rid of it by washing the plants thoroughly all over, wood, buds, and leaves, with a sponge dipt in spirits of wine. If any of our readers are troubled with this disagreeable pest, this remedy is worth a trial. The gentleman said it had not injured his plants in the least The *white scale* sometimes prevails also where the plants have been neglected. We have found a strong lather of soap laid all over the plant with a shoft shaving-brush, a safe application, and effectual destruction to them. The *brown scale* may be destroyed with tobacco water. For the *red spider*, washing the leaves and buds with a sponge dipt in tepid water is the most certain, though rather tedious application; a great preventive is the frequent and copious application of water through the garden-engine and syringe. and keeping up in warm weather a moist atmosphere in the house. The *thrip* and *green fly* may be got rid off by frequent smokings with tobacco.

IPOMÆA.—This is a splendid genus of climbers with large crimson, rose, blue, and white flowers. The roots of some of the species are eatable. The sweet potato of America is the *Ipomœa batatas*. The genus is a very extensive one, comprising more than a hundred species. Of course amongst such a large number there are a few that may be considered the princes of the family. To these we shall direct our readers at this time.

IPOMÆA CANDICANS (Whitish I.); N. America.—This is a very fine species, and though a native of N. America requires a moderate stove to bloom it to perfection. The flower is large, of a milky white colour, with a deep crimson blotch at the bottom of the cup. It is a very desirable species. 3s. 6d.

I. HORSFALLIÆ (Mr. Horsfall's I.); S. America.—The finest of the genus. The flowers appear in terminal bunches in considerable numbers, opening in succession. The flower-buds are beautiful, being of a shining dark colour, almost black. The flowers are of a brilliant crimson, and the season of blooming is of considerable duration, extending from February to October. The foliage, too, is exceedingly handsome. We have seen the original plant in Mr. Horsfall's stove at Everton, near Liverpool. It was much esteemed there, and the roof of one house was entirely devoted to it, which it completely covered, and a more splendid object of floriculture we never beheld. It is a fact, that of all its progeny there is not one that has, as yet, come up to the original one for size and beauty. 5s.

INSIGNIS (Noble I.); N. America.—This is a truly

ne species, though not equal to the last. The flowers ppear from the axils of the leaves in bunches of three r four flowers. These are large, and of a beautiful osy lilac colour, appearing in June, and continuing in lower till September. It is a strong quick grower, with ine foliage. 3s. 6d.

I. FICIFOLIA (Fig-leaved I.); S. America.—A hardy free-growing and free flowering species. Will thrive well in a conservatory during the summer months, but is well worthy of being grown in the stove. The flowers are blue and of a medium size. 2s. 6d.

I. LEARII (Mr. Lear's I.); S. America.—Flowers large, and of the most brilliant azure blue, produced in great numbers from May to October. As this is such a fine climber, and flowers so long and grows so fast, it ought to have plenty of space allowed. It is quite capable, if planted out in rich soil, of covering in one season the entire roof of a moderate-sized conservatory or stove, and a better covering for effect of colouring can scarcely be conceived. We cannot recommend this fine creeper too much. It is worthy of general cultivation, and will, during summer, thrive well even in a greenhouse. 2s. 6d.

I. MUTABILIS (Changeable I.); S. America.—The habit of this species is much like the *I. Learii*. The flowers change from blue to rose: in the morning they are bright blue, and in the evening they assume a rosy tint scarcely less beautiful.

I. TYRIANTHINA (Tyrian Purple I.).—This is a fine species with deep purple flowers, exceedingly handsome. It is hardy enough for a greenhouse in summer. We once saw it doing well out of doors trained to an umbrella-shaped trellis. It is, however, too tender to live through winter even in a greenhouse, and is, therefore, essentially a stove plant.

Propagation.—*Ipomœa Horsfalliæ* does not easily strike by cuttings; it must be grafted upon one-year-old plants of *I. insignis*, which strike easily. Graft in the same manner as described above for *Combretum purpureum*, and at the same time. *Cuttings* of the free-growing kinds may be struck and rooted in the same way as the Combretum. T. APPLEBY.

(To be continued.)

FLORISTS' FLOWERS.

The fine weather of the early part of this month will have enabled our floricultural friends to give plenty of air, and water too if the soil in the pots has really become quite dry: the roots must be kept alive, or the effects of frost will be ruinous.

Examine the roots of *Dahlias*, and cut away all decaying parts, or the disease will soon spread. Also see to the roots of your choice *Ranunculuses*, and expose them to the light for a few days before planting. This should be all finished by the first week in February. Be careful and keep the beds dry, so as they may work easy when you wish to plant. Examine also the *Auriculas* and *Polyanthuses*; stir the surface of the soil in the pots, and clear away all rubbish, decaying leaves, snails, and slugs. Should any worm-casts appear, turn the plants out of the pots, and pick out and destroy the worms. Pay strict attention to *protection* to all plants in pots in frames, &c.; and do not forget the *Tulip-beds* also. If the mild weather continues, shade them from the sun to keep them back—the frosts are yet sure to come, and if the plants get above ground they will suffer severely. T. APPLEBY.

THE KITCHEN-GARDEN.

ALL out-of-door operations must be perseveringly attended to, although we must at the same time be guided by the weather, so that they may be performed with method, and be made to answer the desired purpose, if the weather continues moist and mild. Slug baits should be laid as previously directed, and nothing will be found more likely to attract their notice than new brewer's grains. Time may generally be better afforded now for these matters than when the season gets farther advanced, and every advantage should be taken to manure, trench, ridge, bank, surface-stir, and get forward with every available operation that can possibly be attended to now, for as the season daily advances, so will the requisite operations appear to increase; and the favourableness or unfavourableness of the season has so much influence over gardening operations, that it is requisite for those who have to carry them on throughout the year, to be always strictly economical of their time, turning every minute to the best account.

Frosty mornings at this season of the year are often prevalent after foggy, rainy, mild evenings, and in order to succeed in the production of good, luxuriant early crops of vegetable, salads, &c., a watchful eye should be at all times on the alert, for it is astonishing the sacrifice and destruction of valuable property that may be prevented by a little care and forethought, in having all things prepared against such casualties. Even common dry dust stored away in the summer season in old boxes, barrels, or sheds, is invaluable for winter comfort and protection to vegetation. Charred old tan, saw or wood dust, or charred earth of any kind, is still more valuable, as these are not only first-rate protecting materials, but they act also as stimulants to every kind of vegetable.

Jerusalem Artichokes.—Those who may cultivate this useful tuberous-rooted vegetable, and who have also pigs, poultry, or game to feed with them, will find the present a good season for trenching them out, replanting and sorting them; the best sized tubers will be saved for table, and the others placed in a convenient place, so as to be available for pigs, &c., when required; we find that poultry of all kinds, as well as the Gold, Silver, and common Pheasant, are particularly fond of the artichoke; and we believe the common pheasant may be enticed and domesticated to any particular cover by feeding them with this tuber.

FRAMING.—All available fermenting materials should be collected together, turned, and well parted and mixed together; the season is now advancing when it will be required for various hotbeds, linings, &c. The *Asparagus* should be taken up at intervals of twenty days and placed on slight kindly-made hotbeds. Here a daily supply throughout the season is required; such as is in full cut should be occasionally well watered with tepid water, which has a small portion of salt dissolved in it, and a portion of liquid manure also. *Rhubarb*, too, should be placed in heat in succession, so as to keep up the required supply; and *Sea-kale* should be covered with fermenting materials in a regular manner, so that a kindly steady heat should be maintained, and only enough covered at a time to keep up the required supply. The last year's planted Rhubarb, if it has been well managed, should now have fine strong bold crowns, and it should not be forced if it can be avoided. Although the last crop may be taken from it, by placing over its crowns before this month expires, a cone of dust or fine ashes, taking care to examine the crowns in February, and as soon as the growth has commenced earth it up with fine pulverized earth, to the height of eight or ten inches, cone-shaped; the earth may be scraped up on a fine day between the rows, if the earth's surface has been kept well forked and scarified.

During the winter, beautiful *Sea-kale* may also be produced, in the same way as the rhubarb, without any material injury to the next season's plants; indeed, no injury can be done if a little after-assistance is supplied in the way of liquid manure, with salt added to it; the season of Sea-kale may be considerably prolonged by the

foregoing plan, and still further by adopting the same treatment to the old early-forced plants; if they are not required for the next season's forcing, a very nice tall crop may be thus produced as a second crop.

Radishes, Lettuce, Carrots, Cauliflowers, and such-like framing crops, should occasionally have dry healthy dust sifted amongst them on a dry day, after being first surface-stirred. JAMES BARNES.

MISCELLANEOUS INFORMATION.

HOUSEHOLD ECONOMY.

By the Authoress of "My Flowers," &c.

I DO not think that bacon is sufficiently valued and used among people of small means. It is a most wholesome and excellent description of animal food—light, nutritious, and agreeable, when good of its kind, and nicely dressed. A piece of well cured bacon, with abundance of cabbage and parsnips, is a dinner fit for royalty *in fact*, although its simple nature makes it often considered vulgar and distasteful.

In former days, bacon was almost universally the food of the farmer and the labourer—at least, in those districts of England where it principally abounds; and what better proof could be given of its strengthening qualities than that the stout stalwart sons of the soil were brought up upon it, and rarely tasted other sorts of animal food? In the present times the case is much altered. The farmer's family is too frequently fed with more expensive, and perhaps less wholesome, viands; and the poor hard-working peasant is thankful when he can enjoy a sufficiency of *bread*, without thinking of anything to increase its relish. When wages are low, and bacon is sevenpence or eightpence per pound, and even higher still, it is not possible to obtain it; but now very good bacon indeed is to be bought for fourpence per pound, and even less; and this brings it within the reach of the poor, at least occasionally. I do not wish to eat better bacon than that which we procure at fourpence; and we find it more palatable than what is home-cured, inasmuch as that it seems less rich. We have eaten it very good as low as threepence per pound, but then it is uncertain, and sometimes it possesses a disagreeable smell; but at fourpence it has never failed. Economists would do well to turn their attention to this cheap bacon, one pound of which, with plenty of vegetables, would make an excellent dinner for a family, because bacon goes so much farther than meat, and there is no bone. A side of bacon, kept in a dry cool place, is a treasure to the striving family, particularly when the house possesses a little garden full of nice cabbages. Even if vegetables are to be bought, the expense is not great when they constitute food, which they really do with a small piece of bacon; and with well-made mustard, and everything clean and neatly laid out upon the table, can we complain of such true English fare? What is provincially called a "hollow" pudding is a great addition, when the simple repast requires a little assistance. This is merely a light pudding made with flour and lard, or dripping—the latter, if delicate, is best. About three ounces of dripping to one pound of flour is the right proportion. It must be rubbed into the flour with a spoon, a little salt and grated ginger added, and then boiled, but not so long as to make it eat hard; it should be light and *feathery* to the taste. It may be eaten either with the dinner or afterwards as pudding; and in either case it is extremely good.

Another cheap and excellent pudding is a "hard batter" pudding, which may be eaten served up in the same way. It is simply batter *without eggs, thoroughly* well boiled, and it ought to cut smooth and very firm, but not hard. To those who are anxious to live cheaply such simple preparations are very useful,—the expense is trifling, the addition to a frugal dinner considerable, and they are very palatable also. Suet, lard, and dripping in puddings are extremely nourishing—they are animal food, in fact; and to those who cannot obtain much meat they are valuable substitutes.

Cold bacon is excellent for breakfast, when meat cannot be indulged in by gentlemen, and anything is required in addition to the sweet household loaf. Many persons of delicate health have derived benefit from taking a slice either cold or *toasted*, instead of butter, at the morning meal. When thus eaten, bacon should not be fried, but toasted on a fork before the fire like bread. The greasy particles escape, and the rasher is drier and more wholesome. The drops that fall from it should be caught in a basin, because bacon dripping is good for many purposes. Rashers for breakfast should be cut from bacon already dressed.

The water in which bacon has been boiled *alone*, should be poured into a basin and suffered to grow cold, that the fat which settles on the surface may be skimmed off. It is useful in many ways. If cabbage has been boiled with it (which improves the cabbage inconceivably), the skimming would not be so good; and in this case the liquor will make very good soup for the pour, if rice and vegetables are added; or they will thankfully accept it just as it is. *Nothing* should be thrown away. A little bit of dripping or fat the size of a walnut, put into the water in which cabbage is to be boiled, makes it eat far more soft and tasty than when it is boiled alone. It is not considered to look so delicate, or to be so refined upon an aristocratic table; but that is a very secondary consideration with myself, or those who alone will honour my remarks by glancing over them. We are aiming at the cheap, the simple, and the satisfying; and a nice dish of cabbage thus softened and enriched, with a piece of bread, is a dinner which a thankful heart may well eat with a relish.

In the island of Guernsey, there is a soup which is in very general use among the native families in the upper ranks, but is almost the universal food of the peasantry, and is preferred by them, and servants also, to almost every other thing. Large well-hearted cabbages are boiled in water, with a piece of prepared suet about the size of a pullet's egg when three large cabbages are used, and so in proportion. When they are thoroughly done, the whole mass is poured into a tureen, liquid and all, and eaten with bread. The cottagers cut pieces of bread into a basin for each person, and pour the soup upon it. The preparation used is made by rendering down equal quantities of nice mutton suet and lard together, and pouring it off into pots, in which state it will keep a long time. It is very delicate, and makes a most relishing and unexpensive dish with very little trouble. To a large family of children, so nourishing and cheap a dinner is truly valuable; and although in England we are little accustomed to use such simple ingredients, yet, let us not be prejudiced against such things as others find to be good, but try them, and endeavour to profit by our neighbours' better management and experience. A wife and mother labouring with all *her heart* to keep her weekly expenses within bounds, will gladly seat her little ones round a tureen of Guernsey soup twice in the week at least; and those who feed only upon pulse, on a strong and holy principle, need not fear but that they will have faces as fair as those who sit at the king's table.

TO CORRESPONDENTS.

VARIOUS QUERIES (*Flora Montague*).—There is no good white geranium for bedding except the one you named. *Double Jacobea*: Young plants from spring cuttings, as verbenas, will flower from June to October in any good soil; old plants of it will not do well. It is a good plan to turn young bedding plants into frames, without pots, as soon as they are hardened for the change. *Fuchsia globosa* is a fit subject for a neutral bed, not in an arrangement of colours. *Fuchsias kept dry in winter* are potted in February or March, and then watered. We do not know a good *White Calceolaria* for beds. Do you happen to know it, and have you seen it in bloom? If so, let us know your opinion of it. *A pyramidal*

bed might be made with a *Humea* in the centre; but what plants do you propose to follow? Follow "Aunt Harriet" to the letter with your *geraniums*. *Climbing roses*, when they have covered the trellis, should be cut close, not before.

ENDIVE (*A. B. C.*).—Endive is blanched like lettuce, by tying up the plants when they are quite dry.

WEEPING ASH (*Ibid*).—It may be trained in any direction on a house by fastening the shoots with ties, or nails and shreds, as they grow; but the only advantage it will have there over the common ash is, when it reaches the top that the shoots may be trained downwards again. We would not plant it against anything, or any other tree. The weeping ash will graft easily on the common ash in April, the same way as you would graft an apple tree.

NEWLY-PLANTED SHRUBS (*Novice*).—You have done quite right by placing a lot of leaves over the roots and soil, to keep them down; at the end of April remove this covering two or three inches from the stems, and let the mulching remain all next summer. The best *evergreen roses* are mentioned in all the former volumes several times. No evergreen climbing rose can well be grown as bushes, but as you are a recent subscriber we shall name the best evergreen climbing roses, and in the order of their superiority:—*Felicite Perpetuelle, Princess Louise, Princess Maria, Myrianthes, Odorata* or *Triomphe de Boluyllen, Adelaide d' Orleans, Spectabile, Rampant, Brunonii*, and *Banksiæflora*.

HARDY PLANTS (*B. B.*).—You ask for the names of "half a dozen hardy and half-hardy plants." Before we can answer you, we must know if the plants are to be trees or shrubs, climbers, herbaceous plants, or bulbs. We are not aware of any recent additions to the best annuals.

FLOWER-GARDEN (*Naval Officer*).—Your plan surprised us. We, too, have been in every clime and kingdom—bay, bight, strait, and "road-stead," from pole to pole, in our own little library, and we have often thought that if we had the good or bad luck of having R.N. affixed to our clanship, we would make our flower-garden represent the globe on a flat surface—not in two half globes, as the geographers have it—but by cutting up the old ball into four or six pieces—all the seas would be in grass, the great continents in masses of trees, the adjacent islands in clumps of shrubs, and the Archipelago in flower-beds; the great routs through "the highway of nations" we would lay out in concrete walks. Then, in the evening of our pilgrimage, we could communicate with the whole without the aid of the submarine telegraph. Instead of all this, however, you have chosen the perfection of geometric forms and lines, and the result is a perfect gem of the first water. If the "retaining wall" could have been placed so far back as to give an equal length and breadth on each side of the bow-window, Euclid himself, with the best analyst of perspective at his elbow, could not have made you a better plan for the locality, which we last saw when you were probably at the Antipodes. We shall write again as soon as we have studied your "log."

FLOWER-GARDEN (*W. P. H.*).—"The man" ruined the effect of your garden by making 1 twice or three times too large, leaving all the rest screwed up to the smallest compass. The situation is only fit for a regular geometric figure—working both ends alike from the centre opposite the entrance. You must have experienced the full force of our aversion to long sharp points in flower-beds. As it stands, we would make a *rosary* of 1; 2 and 7, *scarlet geraniums*; 5 and 8, *yellow calceolarias*; 6 and 9, *blueish*, or *purplish verbenas*, or *heliotropes*, or *lobelia racemosa*; and the rest with such low things as you might fancy yourself.

COVERING A WALL, &c. (*A. B., Renfrew*).—Dig out a trench eighteen inches deep and two feet wide on the lawn side of the wall, fill the trench with the best soil you have, and plant ivy, as large as you can buy it, about two feet apart. Water it well the first two seasons, and by that time your wall may be completely covered. In the neighbourhood of London, you could cover the wall at once, with established ivy plants in pots from seven to ten or fifteen feet high. Moneywort (*Lysimachia Nummularia*) is the best *plant for your vase*, and see that it has plenty of water in summer, good soil, and good drainage.

FLOWER-GARDEN (*T. P. S.*).—To study a whole map of the Chinese Empire would be nothing to that of reading the plan of your flower-garden on a page of post paper, with a multitude of writing in thirteen different directions. Our poor old head became giddy the first night turning the page round, and round, and round again, and then we could not make it out. But now having mastered your composition, we are quite at home with you. Your own plan for a flower-garden for that exact place could not be improved on by any one in Liverpool; and your arches, as far as we can judge, will look extremely well when once covered; but do not confine them to roses only. Have a proper mixture, which you may easily select from our previous list, and have them all planted in good soil before the end of February. Rout out the whole of the present hedge, and plant a row of *Gloire de Rosamene* rose instead; but first read what we said about it last summer, and go on accordingly; but add a little fresh soil. You shall have the names for your beds next week.

LICHEN PYXIDATUS (*T. M. W.*).—Why do you use such bygone botanical works? they are of no authority. No wonder that you did not find this moss in any other book than "Green's Universal Herbal." We suppose it is the *Cenomyce pyxidata* of modern authorities. It is one of the commonest of the mosses on banks and other dry soils.

RASPBERRY (*A Subscriber*).—Any respectable nurseryman will supply you with the varieties you name.

PEAS (*Twig*).—Your list is a good one, and your peas should be sown in the order in which we enumerate them. Prince Albert, Early Charlton (if these are sown at the same time, the latter will come into gathering just as the first is over), Ringwood Marrow, Imperial Marrow, Bishop's Long Pod, Hair's Dwarf Mammoth, Fairbeard's Champion of England, Knight's Tall Marrow, Tamarind. This is the order in which we should sow them until the end of May, but after that time we should only sow Ringwood Marrow, Early Charlton, and Prince Albert, these being the quickest growers.

BEES (*B. B.*).—1. Mr. Payne has not published a fourth edition of his "Apiarian's Guide." 2. You have advocated adapting boards, and I found their use last season in enabling me, by passing a divider between them, to remove a small super with ease. Now, how is this to be done with the hive having Taylor's shade—Manual, p. 37, 4th edition;—the inner rim is to stand up half an inch, and the super stands outside. A divider cannot be introduced without lifting the super, and thus breaking the combs—the object sought to be avoided. The super is placed outside the rim, the adapter must be inside, of thin mahogany, and twelve inches square. It may be necessary to cut off the corners to allow the under rim of the shade to fit over it; at the depriving time the shade is removed. 3. No adapting board required with Taylor's bar-hive. 4. In boxes placed upon stocks it is certainly right to have a bottom (easily removed) with a four-inch hole in it. This fixes the combs, and renders them less liable to break down in carriage.

PRUNING NEWLY-PLANTED TREES (*J. S.*).—It is best not to prune newly transplanted trees till the spring—this we have stated already more than once; and when the planting is deferred till the spring, pruning and planting must run close on the heels of each other; but a better plan than either, when home plants are to be removed, is to have the pruning effected in September, or, in the case of evergreens, five or six weeks before their removal.

RHODODENDRONS (*Ibid*).—When the soil is favourable these will grow on steep banks as well as on the flat—witness the fine rhododendrons growing on the common soil on the burning slopes at Malvern Wells. When the soil is unfavourable they are better on the flat system, more shaded if possible, and the surface of the beds to be covered with a thick layer of moss. Rhododendrons have had as much quackery about their treatment as any plants we know. Chalk and calcareous earths they do not like.

MESLIN BREAD.—A correspondent at Newcastle-on-Tyne says, "In your COTTAGE GARDENER last week regarding the proper quantities of flour and rye to mix for Meslin, too much rye is stated. Being constantly in the habit of getting it ground myself for sale, the quantities I can state as used here are two-thirds *wheat* and one-third *rye*, which makes a most excellent brown bread."

SUGAR BEER.—J. E. W. writes to say: "It may be interesting to some of the readers of THE COTTAGE GARDENER to know, that the difference between this beverage and that in ordinary use consists more in name than in reality. The constituents of barley necessary for the manufacture of beer are *gluten* and *starch*, part of which are converted into SUGAR either by the process of malting or that of mashing; and it is from the *sugar* that the *sweet*-wort is formed. Sweet-wort may be prepared from raw sugar in the manner already recommended in THE COTTAGE GARDENER; and if it is analyzed it will be found to be nearly identical with that procured from malt—the chief difference being that slight traces of alkaline salts will be found in the malt liquor.

CAMELLIA LEAVES BROWNED (*J. N.*).—We can hardly make out the reason. There are traces of scale and thrip; and as it has been sent you as a present, we think it might have been injured by being too long shut up when it was growing freely. Take off the discoloured flowers, and syringe with clear soot and sulphur water, but we give you no great hopes of success until next season. If all right at the root, you may cut in the straggling head about April or May; and the closer and hotter you can keep the plant afterwards, with plenty of moisture in the air, the better it will break, and all trace of disease and insects disappear. If such treatment would render your greenhouse too hot—if you cannot manage the matter there during the summer—erect a temporary place for such a fine plant as was lately recommended for unhealthy oranges.

MULCHING OVER ROSE POTS (*A Subscriber*).—Quite right; the water used will thus carry a portion of nourishment to the roots from the decayed dung you have placed on the surface.

MOSSES AND FERNS (*Lady Bird*).—There is no such work on the Mosses as Mr. Moore has written upon the Ferns. *Asplenium Filix fœmina* is the correct botanical titles of the Lady Fern. Wherever it is called *Aspidium* it is an error. You will do no harm to your Ferns, whilst you increase the beauty of their effect, by growing among them such flowers as *oralis*, dwarf *campanulas, primroses, orchises*, and *snowdrops*. *Adiantum formosum* is a New Holland fern, and most of the *Doodias* are from the same country; but there is no such species as the one you mention, neither do we know *Pteris marginata*.

DOUBLE SCARLET THORN (*A Nurseryman, Chelmsford*).—It was Mr. Beaton, and not Mr. Fish, who wrote about this; and you will have seen what has passed between Mr. Rivers and himself upon the subject.

VINEGAR PLANT (*T. W.*).—It was once said to be a native of Italy, but at page 94 of our second volume the subject was set at rest. It is a fungus native of vinegars in our climate, and capable of propagation by offsets.

HIMALAYAN PUMPKIN SEED.—The subscriber having a few saved last year, will be happy to forward a couple to any person on receipt of

an envelope properly directed, and two postage stamps.—*J. B. Storey, Oakham.*

PAYNE'S HIVES (*W. A. E.*).—You are quite right as to the prices, and if you send the money we have no doubt he will have you supplied. We shall be glad of a little of the seed you mention.

RHUBARB SOWING (*Cornubiensis*).—It should have been "sown in *heat*," not "*peat*." If you sow 100 seeds of Red Rhubarb, you may expect to have seedlings all red in various degrees of intensity.

POTATOES (*A Staffordshire Inquirer*).—Plant *Rylott's Flour balls*, or *Martin's Early Seedling*. Remove your *brocoli* plants with a good ball of earth round each.

CALIFORNIA (*An Intending Emigrant*).—By no means go thither if you are tempted by visions of a gold harvest. We have now before us a letter written by an officer on board H. M. S. *Dædalus*, dated St. Francisco, October 31st, and he says:—"It is all luck now, you may dig for a week and not get anything. The diggins are getting worse and worse."

FRUIT FOR NORTH OF IRELAND (*J. N., Omagh*).—*Apples*.—Kerry Pippin, Golden Reinette, King of Pippins, Scarlet Crofton, Ribston Pippin (Summer), Golden Pippin (October), Reinette du Canada, Pearson's Plate, Lamb-abbey Pearmain, Sturmer Pippin. *Pears*.—Citron de Carmes, Jargonelle, Dunmore, Marie Louise, Louise Bonne of Jersey, Beurré d'Amalis, Beurré Diel, Monarch, Glout Morceaux, Hacon's Incomparable, Beurré Rance. *Plums*.—Orleans, Greengage, Kirk's Coe's Golden Drop, Washington, Pond's Seedling, Quetsche St. Martin's, Reine, Claude Violette. *Cherries*.—May Duke, Royal Duke, Reine Hortense, Elton, Kentish Morello. We have placed the above fruits in their order of ripening, and you will see we have expunged some you named, and added others. The north of Ireland is not a very flattering climate as to tender fruits.

FIGS (*G. S. B.*).—Figs in a dwarfed state planted out in a pit, will require from two to two and a half feet square to each plant. Some sorts, however, need more room than others, this is determinable by the size of the foliage conjointly with the habit of the plant. Mr. Rivers grows his figs (in pots) about the size of small currant bushes (see our editorial to-day). If you want to economise room, let us advise you to use a soil somewhat poor, or at least, certainly not rich. A plain maiden light loam will be quite good enough, and you can use liquid manure if necessary, whilst the fruits are swelling. The better your soil, the more room the plants require; just as do potatoes and other green crops.

VARIOUS QUERIES (*Philocarpus*).—There are several "makers" of *pruning knives*, and each, it may be, in high esteem somewhere. We are not aware that there is any peculiar form extant, which ought to claim precedence over those which may be met with in every *really* respectable nurseryman's shop in this kingdom. Spur-pruning is not the maxim with *gooseberries*. Pray purchase the back numbers of THE COTTAGE GARDENER. You will find all the information there, on this head, which you seek. *Moss* on apple, plum trees, &c., is readily extirpated on the remedial system, by applying the urinary matters of the farm-yard or the stable, during the "rest," or winter season. Any ordinary "dusting brush" will enable the operator to search every crevice. Nevertheless, as prevention is before cure, we may as well add, that those who follow the planting advice given in the pages of "THE COTTAGE GARDENER," will not want to resort to remedial measures as to moss. *Graft a cherry* stock when as thick as a very stout goose-quill, if you are in haste. Sir H. Davy is right in recommending fresh dung to be used, if the matter is viewed abstractedly. Let us, however, submit such doctrines to the various expediencies which are forced on us, studying the purpose to which they *must* be applied. As a general principle, the main point with manurial matters is get them to descend, not to ascend. As to your hempen rope for *preserving your blossom*, we remember a trite old saying to this effect—"An empty house is better than a bad tenant." Pray put aside the "hempen rope" this one spring, and according to advice in our back numbers, try the retarding principle for once.

VARIOUS QUESTIONS (*C. T. J.*).—1. A list of 12 or 15 *Calceolarias* for bedding purposes. See page 201, where Mr. Appleby mentions 10, most of which we have proved, with the exception of *Bottel's Hero* and *Virid*, but which we have no doubt are good. Add *Cales' Yellow*; *Salvifolia*, yellow and tall; *Frostii*, dwarf yellow; *Indian Chief*, compact, dwarf, brownish purple; *Lord of the Isles*, buff, dwarf, free flowering. 2. *Cinerarias*.—We do not know of any peculiarly fitted for bedding purposes, as they will not stand the sun well in summer. These with the habit of old *King* answer best. If you want some worth growing, select for yourself from page 182, all of which are good—the newest being the dearest. 3. *Geraniums*.—You do not say how many; and Mr. Beaton did the matter such justice that we fear to intrude. *Tom Thumb*, and *Punch*, and *Improved Frogmore*, are the best dwarf scarlets; *Pumila* and *Lilliputian* are rare little things; *Compactum* is about the best red; and *Lucia rosea*, and some of its varieties, are the best pinks; but it is fitter for a pot than a bed. All the variegated-leaved ones are pretty whether with red or pink blossoms. *Prince of Orange* and *Citriodora* make pretty whitish beds, and their foliage is fragrant; *Unique* makes a fine purple bed. 4. *Petunias* (6).—The old *Phœnicea* makes a splendid dark bed; so does *Prince Albert* in a quiet place and well supported. *Shrubland rose* is a beautiful thing, with a clear eye; *Madame Parfait* is a nice striped thing, and so is *Sir Walter Scott*; *Pet* (Ivery's), pale mottled pink, margined with purple. There are many whites of superior form, but partaking more or less of the old *Nyctaginiflora*, which, for a large bed, is not to be laughed at. 5. *China Asters*.—You must depend upon your seedsman, he will send you almost as many colours as you can think of. 6. *Ranunculus* (12).—For borders none equals the *Turban Ranunculus*. For a bed properly prepared, to be planted in the end of February, the following may be chosen:—*White*, Pausanias; *White and rose*, Temeraire; *white, purple-edged*, Reine des fleurs; *rose, spotted*, Evelina; *dark rose*, Surpasse tout; *buff*, Maurice; *orange*, Cedo nulli: *yellow*, La purite and Voltaire; *very dark*, Tippoo Saib; *crimson*, Duke of Bedford; *scarlet*, Rubens; *purple*, Terpsichore, &c. All the others, except No. 6, may be planted out about the 20th of May. 7. *Passiflora quadrangularis* will not bloom in your greenhouse—winter temperature 40° to 45°, summer temperature 60° and upwards—unless in summer; and then you must wait until it mounts near the top of the house, which you must keep warm there on purpose.

LIST OF PLANTS FOR A GREENHOUSE (*Ibid*).—It is 13 feet by 12 feet. As you have already Ericas, Epacrises, Cytisus, Gastrolobiums, Geraniums, Fuchsias, Azaleas, Cinerarias, Roses, Petunias, Verbenas, Gardenia, &c., we are afraid to recommend more; however, we should like to tempt you with a few *Camellias* and *Correæas*, of which lists have lately been given. You must make up your mind, however, not to have large specimens, as you already have got far too much, if you have no cold pit, &c., to help you.

CLIMBERS (*Ibid*).—*Hoya carnosa* will require a warm place fully exposed to light, and then it will do well, keeping it dry in winter. We would substitute a *Mandevilla suaveolens*, a *Dolichos lignosus*, and a *Plumbago capensis*, which, though not a climber, will answer as one, instead of the *Cobæa*, the *Eccremocarpus*, and the *Maurandya*, which will not only grow out of all bounds, but will be a constant vexation with their decaying foliage in winter.

VARIOUS QUERIES (*J. W. T.*).—1. Why plants should have successive shifts, instead of one shift, in potting? Because there is less danger attending it, especially where there is any hap-hazard work with the watering-pot; both plans have their advantages and disadvantages, which may ere long be discussed. *Tender Azaleas* frequently drop their leaves at this time, from being kept too late out of doors in the autumn, and being allowed to get too dry. As they, like many other evergreens, yearly lose a portion of their leaves, these generally fall before the buds swell much, even under the best treatment. The *Pelargoniums* shifted a month before Christmas, from 3½-inch to 9-inch pots, and looking exceedingly well now, show that you understand all about it. Nevertheless, we would have taken the plan of your neighbour, and, at such a season especially, preferred pots of 5 or 6 inches. We suspect they will require more heat and attention than otherwise would have been necessary. We like to give large shifts after the dark days are gone. You must be on the look out, or your neighbour may yet twit you about your large shift. Your proposed *umbrella trellis* is just the thing for Verbenas; in fact, it is much the same as was recommended sometime ago, only the centre should be a little higher, and then the mass of bloom would resemble a very flat rounded cone. You must grow them well to get them filled in May. They would require to be in their blooming pots in the beginning of March at latest. The following, we think, will suit you:—*White*, White Perfection, Mont Blanc; *bluish purple*, Imperatrice, Josephine, and the old Emma; *purple*, Royal Purple and Defiance; *scarlet*, Emperor of Scarlets, Emperor of China; *crimson*, Gem, Pink, Delight; *light pink*, Madame Rattier; *flesh colour*, Vulcan and Superb; *dark crimson*, Saint Margaret, Princess Alice, light, with pinkish eye. For dwarf compact masses, but which will not run far over the sides of the pot, the following will answer:—Louis Philippe, dark crimson; Samee, large bright pink; Charlwoodii, small dark purple; Barkerii, bright scarlet; Duke of Cornwall, small crimson; Mehemet Ali, crimson. These are all cheap. The *greenhouse plants* named will suit your purpose, except that for good plants you must give more money. The *Lapageria rosea* is said to be a beautiful large-flowered twiner, found in Peru. The *Pleroma elegans* requires careful treatment; you will find some weeks back a note as to its management.

VARIOUS (*Lancelot*).—There is no white variety of *Ageratum Mexicanum* that we know of. *Lobelia erinus albus*, sown at the end of February in heat, will flower after midsummer. It does not always come true from seed. *It is* a good plant for a very small bed. You ask us to "name a flower that may be raised from seed to flower the first year, and to correspond with a bed of heliotrope—Ageratum excepted." We cannot do it; we do not know anything that will do that way. *Tom Thumb*, *Punch*, and *Shrubland Scarlet* stand as 1—5, and 9 with regard to size and strength: they are three sorts of scarlet. *La Belle d'Afric* is a dark geranium with a pink eye, very dwarf. *Ytolinskii* and *Statuiskii* are as one for a flower-bed, and only fit for very small neutral beds, owing to their want of colour. *Sidonia* is a beautiful striped flower, but a tender plant; the same about *Ibrahim Pacha*, but his colour is good—red and white. *Bouquet de Flora* is one of those namby-pamby flowers they call white. It makes a nice bed by itself nevertheless, and so will all in your list; but, with the exception of *Lady Mary Fox*, none of them will be effective in a good arrangement of colour.

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WEEKLY CALENDAR.

W D	JANUARY 23—29, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Th	Male Hazel flowers.	30.449—30.397	40—25	S.W.	—	54 a. 7	30 a. 4	morn.	21	12 5	23
F	Woodlark sings.	30.370—30.168	36—31	W.	0.01	53	32	0 20	☾	12 20	24
S	Conversion of St. Paul.	29.993—29.724	51—45	S.W.	0.14	51	34	1 33	23	12 35	25
Sun	3 Sunday after Epiphany.	29.874—29.384	51—21	W.	0.12	50	36	2 44	24	12 48	26
M	Nettle Butterfly seen.	30.452—30.316	37—29	S.W.	—	49	37	3 51	25	13 1	27
Tu	Shell Snail seen.	30.089—29.803	49—33	S.W.	0.11	47	39	4 54	26	13 13	28
W	Hive Bee flies abroad.	30.003—29.879	50—32	N.E.	0.08	46	41	5 50	27	13 24	29

ANDSCAPE Gardening is the arrangement of the trees and other plants, er, and ground in the neighbourhood of a residence, so as to be utiful and apparently natural. It is, therefore, as superior to land- e painting as a reality is to a pictorial representation, and requires more skill in the arranger; for in the picture it is sufficient for the ter to delineate a scrap of pleasing nature in some happy conjuncture ight and shade, whereas the landscape gardener fails in his object if loes not arrange all his extensive compositions so as to be in some ree ornamental at all seasons, and at all times. Landscape gardening only be practised effectively when there is a considerable space of and to work upon; and he who attempts the picturesque in the dred square yards round a suburban villa only produces the ludicrous, it is like attempting to write an epic poem on a page of paper. In- d, we are far from admiring anything but geometric and Italian dening close about a residence; and even where the surrounding ain is extensive, we like best to pass from art to nature by degrees. sudden extremes are displeasing, but few more so than stepping from rtico on to an unadorned expanse of turf; and Mr. Payne Knight quite correct when he observed, "The poor square edifice exposed e amid spacious lawns, interspersed with irregular clumps, or masses wood, and sheets of water, is a melancholy object—it neither asso- es nor harmonizes with anything." Yet this was the prevailing style n the present century commenced. It had been the fashion in dening, until the beginning of the century previous, to have nothing an endless succession of parterres and geometric beds around the se, one such garden differing only from others in size and the number uch repetitions; but when Kent, with better taste, retained some ions of these gardens, yet glided from them insensibly into the nd more naturally arranged beyond, he was followed by many imi- rs, who exceeded his examples, banished all gardening from round mansion, and rendered it the "melancholy object" we have just recated.

oremost among the imitators of Kent was Lancelot Brown, a man orrect taste in some departments of garden designing, but infinitely rior in most to his great predecessor. Yet he never confessed that place was unfitted for landscape gardening, and he was right, if nse is no object. So constantly did he reply, whenever consulted, there were "great capabilities" about the place, that he generally lired the *soubriquet* of "Capability Brown," and laid himself open e satire, in *Village Memoirs*, of being introduced as "Mr. Layout," neral undertaker of gardens, who introduced the same objects at the e distances in all.

ncelot Brown was born at Kirkharle in Northumberland, in 1715. first employment was as kitchen gardener to a gentleman near Wood- k, and though he moved afterwards to Stowe, and continued there l 1750, Lord Cobham confined his exertions to that department. t nobleman, however, recommended him to the Duke of Grafton, who ointed him his chief gardener, at Wakefield Lodge, Northampton- e, where his judicious formation of a lake first brought him into ce as a designer. Lord Cobham still continued his patron, and ained for him the royal gardenership at Hampton Court and Windsor. was now consulted by all the nobility and gentry; amongst other es he was employed at Blenheim, where by his easy completion in a t of one of the finest artificial lakes in the world, and other improve- ts, he rose to the acmè of popularity; and the fashion of employing continued until the period of his death, which occurred on the 6th of ruary, in 1783.

Whately, who was Brown's contemporary, thus describes the alteration lenheim:—"In the front of Blenheim was a deep broad valley, which iptly separated the castle from the lawn and the plantations before ven a direct approach could not be made without building a mon- us bridge over this vast hollow; but the forced communication was a subject of raillery, and the scene continued broken into two s, absolutely distinct from each other. This valley has been lately led; it is not filled—the bottom only is covered with water; the sides still very high, but they are no longer the steeps of a chasm,—they are bold shores of a noble river. The same bridge is standing without ration, but no extravagance remains, the water gives it propriety. re it the river first appears, winding from behind a small thick wood he valley, and soon taking a determined course, it is then broad igh to admit an island filled with the finest trees; others correspond- to them in growth and disposition stand in groups on the banks, rmixed with younger plantations. Immediately below the bridge the spreads into a large expanse; the sides are open lawn; on that hest from the house formerly stood the palace of Henry II., cele- ed in many an ancient ditty by the name of Fair Rosamond's Bower; tle clear spring which rises there is by the country people still called Rosamond's Well—the spot is now marked by a single willow. Near it is a fine collateral stream, of a beautiful form, retaining its breadth as far as it is seen, and retiring at last behind a hill from the view. The main river, having received this accession, makes a gentle bend, then continues for a considerable length in one wide direct reach, and, just as it disappears, throws itself down a high cascade, which is the present termination. On one of the banks of this reach is the garden; the steeps are there diversified with thickets and with glades; but the covert prevails, and the top is crowned with lofty trees. On the other side is a noble hanging wood in the park; it was depreciated when it sunk into a hollow, and was poorly lost in the bottom; but it is now a rich appendage to the river, falling down an easy slope quite to the water's edge, where, without overshadowing, it is reflected on the surface. Another face of the same wood borders the collateral stream, with an outline more indented and various; while a very large irregular clump adorns the opposite declivity. This clump is at a considerable distance from the principal river, but the stream it belongs to brings it down to connect with the rest; and the other objects, which were before dispersed, are now, by the interest of each in a relation which is common to all, collected into one illustrious scene. The castle is itself a prodigious pile of building, which, with all the faults in its architecture, will never seem less than a truly princely habitation; and the confined spot where it was placed, on the edge of an abyss, is converted into a proud situation, commanding a beautiful prospect of water, and open to an extensive lawn, adequate to the mansion, and an emblem of its domain."

It is only in a free country like England that such a man as Brown could raise himself from being a kitchen gardener in his youth to being High Sheriff of Huntingdon and Cambridge in his old age. Yet this he did by the honourable exertion of his abilities and industry, leaving to his son, who represented Huntingdon in Parliament, a large fortune, and living long in the remembrance of all who knew him as a man of high integrity and benevolence. He never went out of England, neither did he ever contract to execute his plans. He employed assistants to draw his designs, which were applied for not only in this country but in Scotland, Ireland, and even Russia. Repton has given a list of his principal creations, of which Croome Court, in Worcestershire, and Fisherwick, in Warwickshire, now destroyed, were the largest. The places he only altered it is impossible to ascertain. Improvement was the passion of the day; and there was scarcely a country gentleman who did not on some occasion consult him. The leading outlines of his plan were easily copied, and imitators innumerable arose to supply the demand for designs; the spade and axe were at work in every estate; and so rapidly did the face of the country alter, that in 1772 Sir W. Chambers declared that if the mania was not checked, in a few years more three trees would not be found in a straight line from the Land's End to the Tweed.

That Brown possessed taste to comprehend that which was pleasing, and genius sufficient to obtain such effect in some of his designs, it is impossible for an unbiassed critic to deny; but, on the other hand, his greatest admirers cannot pretend that he even approached in any of the branches of design his predecessor Kent. By his opponents, however, he has been too much decried, as by his followers he has been too lavishly extolled. His management of the water at Blenheim can never be surpassed; in this material of landscape it was that he was most excellent. In the management of the ground and woodland he was less happy, inasmuch as that he seldom varied in his plan. His declivities were all softened into gentle slopes; plantations belted the estate, while clumps and single trees were sprinkled over its area. That these were planted without any consideration or object, which taste pointed out as desirable, it is unjust to assert; in many instances still extant a happiness of effect is produced which he must indeed have been a fortunate man to have obtained by chance. The view which he procured of Cheney Church to Latimers, a seat of Lord Cavendish, demonstrates that he could create beauties, and renders any contrary supposition gratuitous. That he was not always successful is most certain, and may be allowed of any man without compromising his claims to the possession of a genius; but of Brown it must also be allowed that he undertook more than he could perform, for one mind, however fertile its inventive powers, could never have furnished fresh designs for the thousands of places which he was required to lay out. Unfortunately, his numerous imitators were without even a particle of his mental endowments; the art became most monotonous, and, as Mr. Loudon says, the professor required no farther examination of the ground than to take the levels for forming a piece of water, which water uniformly assumed one shape and character, and differed no more in different situations than did the belt and the clump.

Meteorology of the Week.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 44.3° and 33°, respectively. The greatest heat, 56°, was observed more than once; and the lowest cold, 17°, was on the 27th in 1827. During the time 86 days were fine, and on 82 days rain fell.

our fourth volume, page 170, we announced the earance of the first number of *The History of British rds*, by the Rev. F. O. Morris, and we then charac- sed it as one of a class we always welcome heartily— namely, the useful, original, accurate, and cheap; for cheap, indeed, are four portraits of birds, most faithfully drawn and coloured, with an ample biography of each, for *one shilling*. We wish we could convey to our pages

the portraits of the Spotted Eagle and the Peregrine Falcon, for they are true to the life in attitude and in gaze, just as we have seen them; yet we only name these as best where all are good, because we happen to have been acquainted with them in a state of nature. The Peregrine Falcon has an interest in the mind of every one familiar even with no other than our lightest literature. The days of falconry were days of chivalry and of romance, dear to our youthful memories, and associated with passages of fervid feeling, such as those of Juliet when she yearns "to lure her *tassel gentle* back again;" and that in Massinger, also alluding to the Peregrine, describing the "tiercel-gentle" pursuing his game—

With such speed, as if
He carried lightning in his wings.

One of these birds we shot on a hawking ground of King John, between Woodham and Colchester, in Essex, and where it is recorded he was in the September of 1212. That bird illustrated the firmness and bravery which every true portrait of him indicates he possesses. The shot had inflicted a death wound, yet when a pointer attempted to take him in his mouth to bring him to our feet, the bird gathered its last remnant of strength into one effort, and died in fixing its beak into the dog's throat. That it is a bird without fear is also told by the fact recorded by Mr. Morris, that although its native haunts are far from those of men, yet, "strange to say, it has been known to take up a temporary residence on St. Paul's Cathedral in London; anything but 'far from the busy hum of men;' preying while there on the pigeons which make it their cote; and a Peregrine has been seen to seize one in Leicester Square."

We unwillingly leave the theme, and we will do so by heartily recommending to our readers the work which suggested it.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

SHARP-POINTED-LEAVED STYLEWORT (*Stylidium mucronifolium*). — *Botanical Magazine*, t. 4538. — The genus *Stylidium* was named, towards the end of the last century, by Olof Swartz, a German botanist and author of several botanical works; and Dr. Brown has enumerated forty-five species of *Stylidium* in his *Prodromus Floræ Novæ Hollandiæ*, nearly forty years back. Since that time many others have been introduced. The name, *Stylidium*, is a diminution of *Stylus*, a column, and is the head of a small Natural Order called *Stileworts* (Stylidiaceæ), belonging to the Gynandrous class of Linnæus, 20-*Gynandria* 2-*Diandria*. The filaments which carry the anthers in this order are united to the style which bears the female, or pistil, the two parts forming together an elongated column, hence the name. The second, or specific, name is from *mucro*, a sharp point, and *folium*, a leaf; indicating, in this instance, that the leaves end in a sharp bristly point. Stylidium is a New Holland genus, forming little tufts of herbage, from which rise the flowers, either singly or on little rigid stems, in spikes or racemes, like an ear of oats, but branched out in several directions. The flowers are small, numerous, generally and chiefly of a p colour; indeed, they may be called New Holland A

having a peculiarly neat manner of exhibiting th gay flowers. They are easily managed in a gre or window in little pots of some light earth, and them seed very abundantly, and are not difficul that way. We should like Mr. Fish, or Mr. Ap name half a dozen of the best species he may h be acquainted with as ornaments, and we would on the fathers of families to procure some of the to teach the *young ideas* the extreme singulari conformation of their flowers and seed apparatu are the best introduction we know of to the stu same parts in the wonderful creation of the Orc In the first place, the flower is in one piece (m lous), and the opening expansion is divided parts, as in orchids; one of the divisions is sma the rest, and answers to the lip, or labellum orchid tribe. This lip rolls back, or is deflect botanist would say; the column is longer than ing of the flower, and hangs down with a bend short lip, as if wishing to get away from the flo the top of the style, or column, is now seen tw full of pollen, each dividing into two parts, and the top of the column; thus keeping the stigm pistil, or female, out of sight in the early sta flower; and if the anthers were to open while were thus arranged, the pollen must necessarily without a chance of reaching the hidden sti here another extremely interesting phenomeno an insect, or a puff of wind, or, it may be, a hi trivance in the parts, beyond our observation the column, and instantly it springs up, fixe

side of the flowers, the anthers expand, and
ır the first time comes to light, and may be
n a little cavity on the top of the column;
ter the way this part is arranged in *Goode-*
ıstanced by a common greenhouse plant,
a formosa. This kind of irritability is seen
her flowers, but the way the anthers and
connected into one body is not seen in any
t we are aware of out of the orchid alliance.

mucronatum was first discovered by Sonder, but
ıto this country by Messrs. Lucombe, Pince,
Exeter, from Swan River seeds. It is a pretty
ır room plant. *Stem* tufted, and very leafy.
h, spreading, narrow, bristly pointed. *Flower-*
ach branch, nine inches high, covered, as well
with hairs tipped with glands; flower-leaves
ht yellow, with a zigzag line of orange.

FREZIERA (*Freziera theoides*).—*Botanical* 4546.—The genus *Freziera* was named by emory of A. F. Frezier, a French botanical Chili and the South Sea Islands. The spe- ıtimates that the leaves are like those of the f China. The nearest genus and species indred is *Lettsomia tomentosa*, a beautiful ırub, described by Ruiz and Pavon, the ellers, in their *Flora Peruviana*. It belongs Natural Order as the Tea and Camellia, uströmiaceæ), and to the first order of the lass of the Linnæan system, *Polyandria* It is a native of the Blue Mountains in ı strong evergreen shrub, requiring the tem- a warm greenhouse, or a structure with a between a common greenhouse and a stove, ners call an intermediate house. The leaves een, and notched on the edges, and smaller, ı the shape and consistency of those of the ovisionally termed leathery leaves, owing to s. The flowers, which are of a creamy white and nearly two inches across, hang down singly from the axils of the leaves, and afterwards give place to berries as large as a small cherry, juicy, and of a fine purple colour. It was sent to the Kew Gardens, in 1849, by Mr. Wilson, of the Botanic Garden, Jamaica, where it flowered in September, 1850. Altogether it is a welcome addition to our gardens.

The *Gordonias* of North America and Java, it will be recollected, are stationed among *Theads*, and with the Tea plant, the Camellia, and a few others from China, they form the principal plants of the order known to the British gardener; but there are many very beautiful trees and shrubs of this same order in the woods of South America and in the East Indies which remain yet to repay the exertions of the plant collector. The Assam tea plant we have seen seems much more robust in all its parts than plants of the China species of the same age and under similar management.

Freziera theoides is described in the *Flora of Jamaica* as resembling the Black Tea plant of China, both in leaves and flowers. It is an evergreen shrub about four feet high, though in Jamaica it attains to five times that height. *Leaves* alternate, pointed oval, dark green, saw-edged. *Calyx* in five segments, with two *petals* heart-shape, point uppermost. *Seeds* angular and numerous.

We must observe, and express our deep regret, that while the above was being penned, intelligence has arrived that *Dr. M'Fayden*, the author of the "Flora of Jamaica," had been hurried to the grave, a victim to his professional duties, amid the fever and cholera now devastating that island.

THE FRUIT-GARDEN.

PRESENT POSITION OF HARDY FRUIT CULTURE.—An inducement presents itself to offer a few general observations under this head—probable usefulness to those who intend planting fruit-trees this spring; and what is done in this way, we may add, must be done speedily.

It would appear, that there is as much room still for improvement in this department of gardening as in any other—perhaps more. In *The Gardeners' Journal* for January the fourth occurs the following remarks:—"In passing through this famous emporium of vegetables, fruit, and flowers, Covent Garden, two or three days ago, we were particularly struck with the scanty supply of hardy *English* fruits. The only good pears, for example, were two or three samples of *Glout Morceau*, and the Jersey and Guernsey *Chaumontelle*." The apples, too, are said mainly to consist of the *Ribston Pippin*, which, it is well observed, has never yet become "a drug" in the market.

Many other remarks occur, which we have not space to quote, all, however, tending to show that the selection and cultivation of hardy fruits in Britain is anything but what it ought to be.

Whilst adverting to the complaints of the metropolitan horticultural press concerning this question, we may as well add, that an article in *The Gardeners' Chronicle* of the same date, by a strange coincidence, animadverts somewhat strongly on the want of skill in the English hardy fruit gardener, as compared with his continental neighbours.

Now, all this is sufficiently astounding. The question instantly occurs to the mind—how is it, in the first place, that our great London commercial gardeners (who are known to be pretty astute as to matters of profit, as connected with the demands of the markets) cannot arrive at such modes of culture as shall not only readily supply the market demands, but absolutely glut them?

Another view of the question also arises; some of the gardening periodicals are, it may be said, replete with information on this head, and have been ever since the days when the ill effects of stagnant and over manured soils were first pointed out. How then is it, that a

thorough reform in hardy fruit culture has not been effected, or if it has, why are not the benefits sensibly felt even in our markets?

These are grave matters for inquiry; and, craving the patience of the readers of this work, we will just glance at the main features of the question. We must in so doing see what is the substance of the advice on hardy fruits given in the pages of THE COTTAGE GARDENER since its commencement. Such, on a careful examination, will be found to be as follows:—

First.—Avoidance of stagnation in all fruit soils.

Second.—A due attention to the mechanical condition of soils, irrespective of the question of manures.

Third.—Manures applied with more caution, and mostly as top-dressings adapted to cases of *real* need.

Fourth.—A recommendation of the "platform" mode of planting, by which, in conjunction with a proper adaptation of stocks, a much earlier profit is obtained; by which, moreover, less labour is entailed in the operation, a greater collection of fruits may be indulged in, and, lastly, superior qualities obtained.

Fifth.—Protection of blossoms based on a *retarding principle;* this is not yet half appreciated, even by first-rate practical men.

Sixth.—A due attention to the summer growths, as superseding much useless labour in the end, as well as many over-elaborate formalities connected with mere modes of training, which have but too well succeeded in decoying the attention of inexperienced persons from the real basis of this question.

Now, with the rising year, we would fain so recapitulate some of those leading principles, as to attract a renewed share of attention, from at least the inexperienced; and in order that the stigma of inferiority may be speedily removed from British gardeners, who we had verily fancied in our yearnings after British supremacy, were the very fuglemen of three-parts of the gardening world.

Avoidance of Stagnation.—Are there readers of this work who still entertain hopes that their damp and stagnant soil will do *pretty well* without draining? Let them at once dispel the idea. A poor man who has not money to purchase a few tiles, or to obtain the drawing of them, may have some excuse; not so the majority of our readers. We have seen many scores of little orchards in our day, composed of as good soil as ever "a crow flew over," yet consisting of stunted and moss-bound trees, totally unprofitable to their owner, who would frequently stand with folded arms wondering how it was, since he had manured them so well, and obtained such good sorts.

A due attention to Mechanical Condition.—If any one does not thoroughly understand the application of this term, which merely relates to what used to be called the staple of the soil, we beg of him to observe that it is not the mere colour of the soil, nor the amount of manurial matters it may contain, that alone adapt it to the well-being of any given crop. The texture of the material should be of such a character, that moisture when imparted should speedily and equally become diffused through the whole mass; not passing through it in seams or rifts, or remaining suspended too long. Now, to accomplish this, it is necessary that a due amount of sand (or something to represent it) be mixed with clayey or over adhesive soils, and *vice versa*. Those of a peaty character, too, need the application of both sand and clay, or marl. There is no rule founded on principle as to proportions; it is a mere rule of thumb affair: every man must judge for himself. We may here observe, that the test used at the potting-bench by gardeners holds good here. Take a handful of the soil when neither wet nor dry, squeeze it *close* in both hands, then let it drop from a yard in height to the ground. If it instantly divide into powdery material, it wants more of the adhesive principle; if it does not divide, it requires sand, and so forth of all the intermediate grades.

Application of Manures.—We may here observe, that the mixing of too much of manurial matters in the soils about newly planted fruit-trees, under the dignified title of composts, has been the cause of more mischief than even the other evils, especially to *small gardeners* who want a quick return, together with many kinds in a small compass. It is one thing to apply rich top-dressings to trees in full bearing, and altogether another to mix a lot of stimulating manures in the soil, which cannot, if a case arise, be easily extracted again. If people would well master the subject of mechanical texture, and exercise a severe economy in the mode of using maiden soils or loams (through the use of platforms on given stations), they would be enabled to reserve manurial matters for other and more legitimate purposes, the latter amply repaying even the purchase of loam, if necessary.

The Platform System.—This consists, as before explained, in preparing soil at given stations for the reception of fruit-trees. As a matter of economy, and greater certainty, it thus stands opposed to the old plan of border making, which is a fearfully expensive proceeding, and has frequently proved as unsuccessful as expensive. By the platform mode, there is no occasion, on even inferior soils, to prepare and improve more than six feet square. Our practice is to use stone, brick, or other imperishable material at the bottom, but by no means concrete, or anything impervious. With any ordinary garden soil of decent character to begin with, six barrows of sound loam is sufficient for any fruit-tree the amateur may desire to plant. Indeed, four will suffice for most. This mode of planting is so very important, in our estimation, as proved by long practice, that we shall feel bound to recur to its details.

Retarding Blossoms, as we have before observed, is not yet half appreciated. We take some credit as to this practice, as being the first to bring its importance prominently before the public; but the merit, if it possesses any, will no doubt be claimed by some future practitioners as soon as they perceive the importance of the principle. Thus it has happened in the matter of sea-kale forcing, on a simple and more economical principle, by taking up the roots; the latter grown in a special way for the very purpose. Although not the very first to practise it, we were, doubtless, the first to draw public attention to the question, having advocated the practice strongly for some twelve years at least. Now we perceive most of our best gardeners fall in with the practice. The readers of this work will find information about the retarding of blossoms in back numbers.

Attention to the Summer Growth.—Without this it is impossible to attain that pitch of success of which trained trees are susceptible. Much has been said on this head in previous papers, and much remains to be said; but we hold it the best policy, in a general way, to shape our weekly papers as much as possible to the period at which they are written.

Once more, then, we beg our readers to believe that only a very small portion of the success of which our hardy fruits are capable, has yet been achieved. Let not any one be daunted because he has hitherto been foiled; let him rather endeavour to acquire an intimate knowledge of those first principles on which *alone* success *can* be based.

Modes of training, and such matters, must ever be held a subordinate affair; nevertheless, it is quite possible, nay, easy, to combine the utmost symmetry as to training matters with those conditions which insure healthy, permanent, and fruitful trees.

Above all, let every one be exceedingly cautious in choosing kinds. Let the maxim of our best plant-growers of the present day be that of the fruit grower—

Selection, not collection. Inquiries concerning kinds are always answered with the utmost caution in these columns; and we may here remark, that in the absence of *special* information as to the geographical position of the locality, we are compelled to prescribe for about the centre of England, as being least likely to mislead. Let not inexperienced readers imagine these to be immaterial affairs: the grape-vine is a pretty good illustration. Who would plant a vine for its fruit amongst the hills of the north of Ireland, or at Johnny Groats?

R. ERRINGTON.

THE FLOWER-GARDEN.

ROSE BANK.—Of all climbers for covering such banks as I described last week, perhaps roses are the most appropriate. A rose bank is indeed a very pretty thing where roses do well—that is, where the natural soil of the place suits them. Like the vine, the pink, and the thousand other plants with which we have to do, the rose likes one particular kind of soil better than any other, and far better than the best artificial mixture the gardener and the chemist can prepare it; and, which is more strange than that, with all our practice and our philosophy, there is no rule yet established by which we can determine beforehand whether this or that kind of soil will best suit any given kind of plant. There is one thing, however, which any one who has grown the rose for any length of time may have learned, and that is, that a rose garden can hardly be over-dunged, and that no soil is too good for the rose. It follows, if we are to grow roses after the manner here suggested, we should in the first setting out prepare a thoroughly good and rich border for them, and also make it a standing rule—never to be departed from on any pretext whatever—that no other plant is to share with the rose the good things in this good border. If there is one thing more than another in which gardeners, amateurs, florists and all err, it is in making a suitable bed or border for one kind of plants with the right hand, and with the left one putting in others "just for a season or two, while the soil is fresh." Those who cannot resist this bad style of cultivation should not go to the trouble and expense of making a rose bank.

On either a sandy or open gravelly bottom we seldom think of putting in drains for flower beds or borders, and I believe I have said already that there is hardly a flower bed in the gardens here that has not been clayed at the bottom to prevent the escape of moisture too fast; nevertheless, such a border as I now contemplate must be provided with a thorough good drainage, whatever kind of natural bottom it may be on, because all the rain which falls on the whole surface of the bank must of necessity run down on the border, as off the roof of a house; indeed, the borders on either side of a ridged bank may be compared to gutters under the eaves of a roof. Climbing roses would do all the better if the border is full two feet deep—they do not require a very wide border, but their natural way is to strike their roots down a good depth; a yard wide will be quite enough for any climbing rose I know, if it can go down deep enough. If the bottom was favourable—say either rock, sand, or open gravel—I would choose a four-feet-deep border a yard wide before a six or seven feet wide border only eighteen inches deep. Some day or another I shall advance proofs sufficient to establish the fact, that we—at least, we gardeners—have established an untenable doctrine with respect to the depth that roots should be allowed to reach; but for the present border let us say two feet deep and three wide, of the best materials, the surface of the bank made sure for the next dozen years, and then we are ready to plant; and, that our next-door neighbours may not find out what we have been driving at all the winter, the best plan will be to put in a double crop of plants at once, placing two and two of a kind next each other; and when the bank is covered, which it very soon will be, we shall have a whole host of duplicate plants to take up and dispose of in any other of the ways that we have been suggesting in THE COTTAGE GARDENER.

I should think, if every thing went on favourably, that at the end of the third year we might begin to thin out some of these fast-growing climbers where they became too thick; then would be a good opportunity to try the experiment of close pruning them in the middle of September, so as to be ready to transplant six weeks afterwards, and do as well the year following as if not interfered with at all. Another way would be to try some of them against old or young trees about the garden, after the old tar-barrel fashion, and these would just be the very kinds of plants for this experiment. But why suggest, when there is no end to the ways one might dispose of a lot of well nursed and established hardy climbers like these? Therefore, the best way would be to order them in the lump, just as the nurserymen often advertise them, and plant them at five or six feet apart to begin with: this would be by far the cheapest way, only if a large number was bargained for I would stipulate that one or two of the best sorts in each class should be included. And here I may as well give my voice in aid of a suggestion I saw in a contemporary the other day with respect to *rose catalogues*. The suggestion, I beg to assure the dealers, if acted on, would put more money in their pockets than would pay for printing a double impression of their most useful catalogues. It was to the effect, that all roses whatever should be entered in a continuous alphabetical arrangement, and the class to which each rose belonged be marked in one column on the same page, as is now done with heights and prices. I was once of opinion that not only rose catalogues but all dictionaries and encyclopædias should be arranged in natural groups, as botanists do their genera, and as rose growers do their catalogues at present; but I am now old enough to see the great folly of such ideas; and if I were not, the queries from correspondents of this work would convince me of my error. It is all very well for we gardeners, and for all those who have a pretty good notion of any class of subjects, to have them presented to us in their natural classification, but depend upon it, if we are in earnest in wishing to carry the great bulk of our countrymen and countrywomen along with us in the march of improvement, there are no means so easily to effect our purpose as the A B C plan of arranging all our catalogues and dictionaries. Witness the present demand for our own *new Dictionary*, and the praises already sung in its favour, before people are aware of even a tithe of what is still behind.

Now, to make a beginning, here is my own list for a rose bank just in the way all amateurs wish for the whole catalogue. *Evr.* stands for Evergreen; *Cl.* for Climber; *Noi.* for Noisette; *Ayr.* for Ayrshire; *Bnk.* for Banksian; *Brslt.* for Boursault; *Pra.* for Prairie roses; *Mlt.* for Multiflora; and *Msk.* for Musk climbing roses; and what is to hinder any one from following the same plan if the sections were double the number, or any other simple plan which may be more easily understood. At the beginning of the catalogue all these abbreviations, or shortenings would be set down, also, in the order of the A B C, thus:—

Ayr.	Ayrshire	*Mlt.*	Multiflora
Bnk.	Banksian	*Msk.*	Musk
Brslt.	Boursault	*Noi.*	Noisette
Evr.	Evergreen	*Pra.*	Prairie

Then the greatest novice in the land would know at once what he was about as soon as he heard the strangest name in the whole list; or say that I had written, off-hand like, in a confused paragraph, that, next to the old

Cabbage rose, *Souvenir de Malmaison* was my peculiar favourite, which, by the way, would be quite true; he would only have to turn to S and look down the line till he came to the very name; then, passing his eye across the page, he would see in one of the ruled columns that it was a *Br.*, or Bourbon rose; *mo.*, a moderate grower for a Bourbon; *li.-fl.*, a light-flesh or blush-coloured rose; *v. l.*, a very large one; and 1s. or 1s. 6d. charged for a nice healthy plant of it. And why not translate the names as we do in the *Dictionary?* Thus, *Souvenir* means remembrance, and *Malmaison* means a palace residence near Paris, once occupied by the ill-used Empress Josephine, the faithful and cruelly divorced wife of Napoleon; therefore this rose is a remembrance of Malmaison; or, if you like it better, a rose to the memory of the faithful Josephine—the best of all the French roses. Let Mr. Rivers try his hand on this way of arranging his rose catalogue, and he will have more customers than he can grow roses for.

BEST CLIMBING ROSES.

1. *Banksia:* white; requires a south aspect on a bank, and protection in winter for the first four or five years.
2. *Banksia:* yellow; same as No. 1.
3. *Banksiæflora* (Evr.): white flower with a buff centre, very hardy.
4. *Bennet's Seedling* (Ayr.): pure white, and very hardy and fast grower.
5. *Crimson Boursault:* the best of its class.
6. *Dundee Rambler* (Ayr.): whitish, very hardy, and free grower.
7. *Donna Maria* (Evr.): pure white, very hardy, and fast grower.
8. *Felicite-Perpetuelle* (Evr.): small creamy white flowers, very hardy, and free.
9. *Gracilis* (Brslt.): a strong free grower, with pink flowers.
10. *Grevillii* (Mlt.): the seven sister rose, of various hues; treat it as No. 1.
11. *Inermis* (Brslt.): a large red flower, and free habit of growth.
12. *Jaune de Prez* (Noi.): a strong grower, with buff flowers; tender; treatment as No. 1.
13. *La Biche* (Noi.): a strong grower, hardy, with large clusters of white flowers.
14. *Lamark* (Noi.): tender; splendid large whitish flower, free, and best worked on No. 8.
15. *Laura Davoust* (Mlt.): rather tender; a fine sort, with light-shaded flowers.
16. *Lutea*—Fortune's double yellow—(Evr.): said to be splendid.
17. *Maria Leonida* (Msk.): tender; light-flowered; to be treated as No. 1.
18. *Myrianthes* (Evr.): very hardy, fast grower, perhaps the best.
19. *Princess Louise* (Evr.): very hardy, very strong, and blush-white flowers.
20. *Princess Maria* (Evr.): very strong, very hardy, with pinkish flowers.
21. *Rampant* (Evr.): a strong hardy sort; white flowers, blooms in autumn.
22. *Rivers* (Msk.): a sweet pinkish flower, tinged with buff.
23. *Splendens* (Ayr.): very hardy, fast grower, with creamy-white flowers.
24. *Queen of the Prairies:* a fast grower, but tender, and must be treated as the Banksians; it has large reddish flowers, sometimes striped with white.

This list of climbing roses is the most serviceable one hitherto furnished in THE COTTAGE GARDENER, or anywhere else. It is quite long enough for the largest establishment in the world; and I have grown every one of them, and twice the number, except 16, Fortune's yellow China, and 24, Queen of the Prairies. I believe there has been some mistake about 16: it was pronounced in London, as soon as it flowered, to be good for nothing; but last summer twelvemonth I had a report of it from the neighbourhood of Hereford which said it was most magnificent then, and the admiration of everyone who entered the garden. The reporter knows roses as well as I do, and I know the best of them as well as anybody, therefore I recommend it as the best and newest in the list. Nos. 1, 2, 10, 12, 14, 15, 17, and 24 are tender sorts, at least until they are well established; but on a sloping bank facing the south they would answer much better than against a south wall, and would be much easier protected there with fir or spruce boughs or laurel prunings stuck among the branches. Here I budded 14 on many sorts of stocks, and those which it likes best are 8 and 18: on the former as a pillar rose, and worked eight or nine feet from the ground; I never saw it flower better; and when it does well, there is not a finer white rose in existence; with me it does not do well against a south wall. 5 and 12 will generally bloom in the autumn, and to encourage them to do so, the strongest of the flowering shoots should be cut back half their length in May, or as soon as they show flower-buds, and many more of them might be made to flower later that way. Of all the roses 15 produces most flowers in a house; 3, 8, 17, 18, 19, 20 are the best of what we call evergreen climbers. They will do on any aspect, and all the hybrid perpetual roses will do remarkably well budded on 8, 17, 18, and 19. 13 is a very large one for its class; and the Ayrshire roses, 4 and 6, to which *Ruga* might be added, will grow freely where few roses could exist; and finally, no hedge, or bank, or brae should be planted with roses without a good many of the *Glorie de Rosamene* being put in at the same time.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

FORCING HARDY PLANTS FOR DECORATING THE GREENHOUSE IN WINTER AND SPRING.—As a sequel to other lists, for varied purposes, lately given, it may not be out of place to advert to a few hardy things that may be used for ornamenting the greenhouse from Christmas, and onwards, until they bloom naturally out of doors. If introduced even at this season, the flowers will be interesting, and the plants will require less attention than when the bloom is wanted early. In either case, however, success will greatly depend upon having a forcing pit, or a house of some sort where a higher temperature can be maintained until the flowers are expanding. If there is nothing but the greenhouse to take them to, without injuring the other plants, hardy specimens could not be got into bloom many weeks before their usual time, unless they were introduced very early in autumn.

I shall first give a short list, and then allude to some of the main points of management, premising that the list will not be extended, and that it will be less distinguished for novelty and rarity than as a group of common plants that will bloom early with but a limited amount of attention. The following may be considered a group of *deciduous shrubs* well suited for this purpose.

Amygdalus (The Almond) *nana, incana, sibirica,* and *pumila* are neat little shrubs from two to four feet in height, producing an abundance of pink flowers upon dumpy spurs, and also on young shoots of last summer's growth, and flourishing in any common soil.

Azalea pontica, with all its varieties, and the beautiful garden hybrids, especially if the latter, are not introduced into heat until after Christmas. Do not force it very early, as if that is tried the colours will be too pale. Sandy peat best suits all the varieties.

Cerasus (Cherry Group) *Mahaleb* and *Pseudo-cerasus*, from five to ten feet in height; *pumila* and *pygmæa*, three to four feet in height; flowers white; *japonica* and *japonica multiplex*, from three to five feet, flowers whitish with a shade of pink; bloom most freely on the two-year-old wood.

Chimonanthus fragrans (termed sometimes *Calycanthus præcox*), yellowish red; *grandiflorus*, dullish yellow, flowers not showy but delightfully fragrant, produced on short spurs and well ripened young wood. Little or no forcing will be requisite for these, as if put in the greenhouse in the end of autumn they will yield their odour during most of the winter. Common loamy soil with a little peat.

Cydonia japonica, large red flowers; *japonica alba*, white, plants from three to six feet, bloom produced chiefly on the young wood and short spurs; *sinensis*, pink bloom, and stronger growing. Common soil.

Cytisus scoparius, *flore pleno*, white, six feet; *racemosus*, yellow, and sweet; *purpureus*, purple, from three to six feet. Good open loamy soil, with a little forcing in the beginning of winter. *Racemosus* will bloom freely in winter and spring.

Daphne mezereum, red; *album*, white, three to four feet in height; *altaica*, white, three feet; *Fortunii*, blueish lilac; but to have this in bloom will require similar treatment to *odora* and *odora rubra*, alluded to last week, which, to be in bloom, require merely to be *grown*, not *forced*. *D. Collina* has purplish flowers, and *D. cneorum* has trailing shoots, and beautiful heads of pink flowers; and there is also a variety with variegated foliage, but these two last species are evergreen, and like a good portion of sandy peat in the soil.

Deutzia scabra, *staminea*, *corymbosa*, all white. With the first we are best acquainted; the flowers almost equal those of the Lily of the Valley in gracefulness, and are produced abundantly on well-ripened young shoots. It should be treated like a stool of raspberries; the old shoots when done blooming being cut away to give light and air to the young ones. The more this is attended to, the greater will be the success. Plants in pots to be forced early, should be kept in the sun all the autumn.

Fothergilla alnifolia, white, four feet. Sandy peat.

Forsythia viridissima, a Chinese shrub, not deciduous; flowers brownish yellow, produced from the axils of the fine green leaves. Stands a little heat well.

Genista canariensis; this is properly a greenhouse evergreen plant, flowering late in spring; but with a little extra heat, it will bloom nicely after Christmas. Peat and loam.

Jasminum officinale (the common White Jasmine); if not put in heat too early forces well, if pruned early in autumn; *revolutum*, yellow, does the same; and *nudiflorum*, yellow, rather new, is said to bloom freely in winter with the shelter of the greenhouse.

Kerria japonica, yellow; where grown, to be forced; should be treated like the *Deutzia*. Common soil.

Philadelphus coronarius. This is the tallest of the group, frequently in good garden soil reaching twelve feet; but at half that size it forces very fair, if not put into heat until now. Most people admire its sweet, white, somewhat orange-scented flowers; the other species are all white, and dwarfer in their habits: *coronarius flore pleno*, *hirsutus*, *tomentosus*, and *grandiflorus* may be selected. Common soil; requires to be thinned out after flowering.

Pæonia Moutan. This, in most of its varieties, will succeed well if not forced earlier than the present time, and will make a magnificent appearance.

Prunus maritima, white; about four feet; common soil.

Pyrus arbutifolia, white; three feet; common soil.

Rhodora canadensis, pinkish red; three or four feet in height; common soil.

Ribes sanguineum, red; *speciosum*, red; the first resembling the currant in its mode of flowering, the second the gooseberry, are the two best for this purpose; and the first the most beautiful. Flowers produced most freely from the well ripened wood of last season's growth; common soil. If these are attempted early, the flowers will be destitute of their rich colour.

Roses—Moss, Provence, Perpetual, Teas, Bourbon, and China may now be introduced, and will come in by the end of April.

Spiræa crenata, *alpina*, *hypericifolia*, *uralensis*, dwarf, with white flowers; blooming profusely; *bella* is a pretty thing, with pinkish flowers, but requires a longer time to force it; common soil.

Syringa vulgaris, the common lilac; all the varieties force well—blueish, purple, and white; *persica*, the white and purple varieties, the plants are more compact and bushy than the common. *Chinensis*, violet; habit much the same; *Josikæa*, deep lilac; habit more like *vulgaris*; common soil; plants require merely a little thinning in summer.

Weigela rosea. The specific term describes its colour; blooms chiefly on the well-ripened young shoots; a very desirable addition for this purpose.

Of *Evergreens* I shall merely mention a few, and these for the present shall be confined to what is termed the group of American plants, all of which have small fibry roots, and require heath soil to grow them well.

Andromeda calyculata, white; several varieties of the same colour; *angustifolia*, white; *polifolia*, pink; there are some half dozen varieties, varying chiefly in the foliage; *rosmarinifolia*, *speciosa*, *glauca*, *decalbata*, are other pink-flowered species, all growing from one to two feet in height.

Kalmia glauca, purple; *rosmarinifolia*, *latifolia*, *angustifolia*, and varieties; and *cuneata*, reddish and white; dwarf pretty shrubs.

Sedum palustre, *latifolium*, *canadense*, all white and dwarf.

Rhododendron.—This would constitute a good supply of itself; fine bushy plants of *ferrugineum* and *hirsutum*, with their red flowers, make a fine appearance; the whole of the varieties of *ponticum* with purple, white, and reddish flowers, force well; and the splendid hybrids between *arboreum*, and other more hardy kinds, do best of all when they are well set with buds—almost equalling, if not excelling, *arboreum* in colour, and far exceeding it in the profuseness of their blooming. A few good plants are a great outset to a greenhouse or conservatory in spring, although the last mentioned will do out of doors well in a mild spring, yet they never have the same splendid appearance as under glass, the rain and winds, not to speak of frost, injuring their fine blossoms.

Of herbaceous plants, in addition to many others already indicated, I may mention the *Lily of the Valley*, which stands heat well; if not potted before autumn, the strongest buds should be selected, and the pot be packed closely with roots. The *Mimulus moschatus*, the Musk plant, is also a favourite with many, and forces well; old pots may be kept, or a little fresh raised from the garden. *Pinks* should also have a place, and especially the *Anne Bolleyn*; these do best from cuttings taken off early in spring, planted out, and lifted with balls early in autumn. The *Forget-me-not* forces well, if there is not a high temperature given to it; and the pretty flowers are nearly as interesting as its associations.

GENERAL TREATMENT.

1st. It is important to have the plants in good order, the buds well set, and the wood well ripened.

2nd. The plants should be well established in the pots, by being potted early. The pots should be plunged during summer in an open situation. If kept in a shady place the buds will be flimsy. An exception as respects potting may frequently be made in the case of the American plants just mentioned, and also their allies, the *Azaleas*, as they will rise at any time from peat soil with good balls.

3rd. Forcing should commence gradually, beginning with 45°, and rising by degrees to 60°.

4th. The bottom-heat should, if possible, be higher than the top temperature. Success may be obtained, where there is no means of giving bottom-heat, but the trouble and risks are greater. In every case of forcing, the roots should not follow, but precede the expansion of the branches. In the present case the difference at first may be 5°, increasing gradually to 15° or 20°. This difference is easily regulated where there is a hotbed, by the mode of plunging the pots—setting them in merely at first, and plunging deeper by degrees. Although few deciduous plants answer so well without being established in pots, yet we have taken up many of them with fibrous roots, such as *Lilacs*, and even *Roses*, to a considerable extent, and succeeded very fairly with them, owing to being able to give them *bottom-heat*. They were treated, however, differently from established plants. They were at once plunged in a temperature of from 60° to 70°, while by keeping air on, back and front, or taking the sashes off, the top temperature ranged from 35° to 45°. The object here was to get roots plentifully formed before the buds commenced expanding. This matter will be worth the attention of those who would like to try a few things now from the open garden. If fresh potted American plants are thus treated, they will succeed all the better, though the bottom-heat at first must not be quite so high as for roses, &c. In growing thus in bottom-heat, the plants should be gradually moved out of it before taking them to the greenhouse. All sudden changes should be avoided.

5th. When the plants have done flowering, if it is desirable to use them again, they must not be placed out of sight behind a wall. If possible, a situation under glass should be given them, and what pruning they require (unless stopping a luxuriant shoot afterwards) given to them. Air, in quantity, should be admitted gradually until they will not want the sashes, and then they may be top-dressed, or shifted, and plunged in an open situation, and mulched over for the summer. If such a plan is adopted, such plants will soon come in early of their own accord, while those taken from the open border will always be mere tyros for forcing.

6th. I say nothing of watering, syringing, &c., because they have lately often been referred to; the chief thing in the way of prevention will be a frequent puff from the tobacco fumigating machine, to keep down insects.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

ORCHIDS THAT THRIVE WELL IN POTS *(Continued from page 230).*

CORYANTHES MACRANTHA (Large-flowered C.); Caraccas. A most extraordinary flower, even among this tribe of out-of-the-way forms of inflorescense. It is very large. One of the lower parts of the flower forms a kind of cup, overhanging which is a pair of fleshy horns, from which distil drops of a bitter liquid so frequently as nearly to fill the cup. The sepals and petals are of a bronzy yellow colour, striped and spotted with purple. The lip is very thick and fleshy, dull yellow, striped and spotted with crimson. It is, however, impossible to give any correct idea by description of this monstrous flower. We strongly recommend all orchid growers to procure it, in order to observe one of the most extraordinary productions in the shape and size of a flower nature produces. 42s.

C. MACULATA (Spotted C.); Demerara.—Not so large as the preceding, but equally curious. The ground colour of the whole flower is yellowish white, thickly spotted with dull crimson. 42s.

C. MACULATA *var.* PARKERII.—The same colours as the last named species, excepting the lip, which in this variety is beautifully shaded with dark brownish purple. It is also more rare. 63s.

C. SPECIOSA (Showy C.); Brazil.—There is a great similarity of form in this species to *C. maculata*, but it is nearly self-coloured, being of a bright yellow colour generally. Mr. Brocklehurst, of the Fence, near Mansfield, once imported a large mass of this species, which bloomed the second year afterwards, and the upper part of the flower was of the most brilliant crimson, or rather bright red, the rest being the usual colour. Unfortunately, this variety grew less and less every year, and at last perished. The species is very difficult to keep. Perhaps it is often grown too fast by giving too much heat constantly, and so the shoots grow weaker every year, till the plants finally die. We have a few plants here that appear to be doing very well at present. 31s. 6d.

Culture.—The leaves of this family are long, thin, and delicate, and when in a young state are still more so, consequently, are very impatient of moisture. The flower-stems protrude from the side of the pseudo-bulbs, and are of a drooping habit. These two peculiarities point out to the experienced cultivator the particular points necessary to adhere to in order to succeed in growing them well. The pots must be extra-well drained. Turn a small pot upside down over the hole at the bottom of the pot, fill in round it with roughly-broken pieces of potsherds, and cover them and the small pot with smaller pieces of the same material. This drainage will then occupy about two thirds of the depth inside the pot; fill the remainder with a compost of very fibrous peat and chopped sphagnum with small pieces of charcoal, and small broken potsherds intermixed. Let this compost rise a little above the rim of the pot. Then turn the plant out of its old pot, and break as few of the living roots as possible; shake off all, or nearly all, the old soil; remove all the dead roots, brown sheaths of the psuedo-bulbs, dead leaves, and insects; then place the plant upon the compost in the fresh pot, and pack it round with the rougher pieces of the compost, finishing with covering the roots up to the base of the pseudo-bulbs and no higher; give a gentle watering from the fine rose of the syringe. The potting of the plant is then finished, and it will stand upon a small conical hillock in the centre of the pot. In that position, the water will easily run off, or be evaporated from the young shoots, and the flower-stems will have a more free egress into the open air than if the plants were potted level. The season for potting should be when the young shoots begin to appear from the base of the last year's growth; and by managing the growth and rest properly, they will begin to grow in the early part of the year. If this growth happen in March, it will be the right time, because then the days are becoming longer, and the sun has more power—two circumstances which will almost insure health and vigour sufficient to grow well, and produce large and healthy pseudo-bulbs, without which it is hopeless to expect fine high-coloured flowers. In summer, these plants should have a high temperature; 70° by night and 85° by day. Whilst growing, especially as the bulbs begin to swell, a liberal supply of water at the roots should be given; but the syringe must be used very cautiously, and only in the mornings of sunny days, so that the moisture may be evaporated amongst the young shoots once every day. When the pseudo-bulbs are fully formed, the season of rest, or winter treatment, ought to commence. The moisture both at the root and in the air should be considerably lessened; and when the very shortest days arrive, almost no water should be given for three months. This low, cool, and dry winter culture will keep the plants in the best possible condition. They

will be attaining strength to start with power when the stimulating materials of fresh compost, increased heat, light, and moisture, are applied at the commencement of the growing season. The time of flowering is, under such management, from May to July.

Situation.—As these plants are all low growers, seldom exceeding a foot in height, they ought to be placed pretty near the glass. If possible, they should not be further off than three feet, or nearer than two feet.

CYCNOCHES BARBATUM (Bearded C.); New Granada.—Sepals and petals greenish white, spotted with pink; lip the same colours, and beautifully fringed; small flowers, but very pretty. New and rare. 63s.

C. CHLOROCHILUM (Yellowish green lipped C.); Demerara.—This is a very fine plant, with large handsome flowers. They are of a yellowish green colour; the lip being lighter. The column is gracefully curved like a swan's neck, and the pollen masses form a head. This fanciful likeness is the reason for the first name, which is derived from the Greek words *kucknos*, a swan, and *auchen*, the neck. It is commonly known in English as the *Swan plant*. The flower is very fragrant. 21s.

C. CUMMINGII (Mr. Cumming's); Sincapore.—Sepals and petals are white; the lip is the same colour, with a bright yellow spot in the centre. Very rare. 63s.

C. LODDIGESII (Mr. Loddiges's); Surinam.—Sepals and petals greenish brown, thinly spotted with dull purple; the lip is white, blotched with dark red; very fragrant. This is a very desirable handsome species; the spikes produce four or five large flowers each. 21s.

C. LODDIGESII *var.* LEUCOCHILUM (White-lipped variety); Guiana.—Sepals and petals greenish yellow, blotched with brownish red; the lip, as the name imports, is white, shaded round with yellow. The flowers are very large, frequently five inches across. It is a desirable sweet-scented variety. Rare. 42s.

C. MACULATUM (Spotted C.); Brazil.—The flowers are of a buff colour, spotted thickly with purple. The pseudo-bulbs are shorter than any other species; the flowers are produced on a long raceme, are rather small individually, but are very numerous on the spike. 42s.

C. PENTADACTYLON (Five-fingered C.); Brazil.—Sepals and petals pale yellow, tinged with green, and have broad chocolate coloured blotches; the lip is the same colour, and is divided into five parts like a man's hand; hence the second name. A curious interesting species. 42s.

C. VENTRICOSUM (Inflated C.); Guatimala.—The most common of the whole genus. It is very like *C. chlorochilum*, but not so large. It is the most sweet-scented of all, and the most easy to cultivate. 15s.

C. VENTRICOSUM *var.* EGERTONIANUM (Sir Philip Egerton's var.)—This is a most curious departure from the usual forms and colours of this family of plants. We have seen spikes of its flowers full half a yard long, and the colours the darkest purple, almost black. It sports sometimes back into the original species, so that one year it may be *C. ventricosum* itself, and the next this very dissimilar variety. It is, however, more difficult to cultivate. 42s.

Culture.—The same compost as is described as suitable for *Cœlogynes* will grow these plants well; if a little sand is added it will be an improvement. The summer culture begins about March; the young shoots will then begin to make their appearance, and that is the right season for potting. Follow the same method as is described for the previously named genus, excepting it is not advisable to pot them so high; that is, they should be pretty level with the rim of the pots. Water moderately at first, but when the pseudo-bulbs are half grown, give water in abundance, making the compost thoroughly wet at least once a week. The syringe, also, should be used freely, and a very moist atmosphere kept up constantly. This free treatment will cause large strong pseudo-bulbs and equally fine flowers. The season for flowering is immediately after the bulbs are fully formed, a circumstance somewhat unusual in orchids, most of them requiring a rest after the growth is completed, before they flower. The flowers appear near the top of the last made pseudo-bulbs, through the months of June, July, August, and September. We have had them even as late as December in this last year. Winter culture begins as soon as the bloom is over. No water after that must be given, and they should be placed upon a shelf near to the glass, where no water can possibly reach them. Here they will lose all their leaves, and the bulbs will become firm and dry, and here they may remain till the potting season returns.

T. APPLEBY.

FLORIST'S' FLOWERS.

Auriculas.—The weather we had lately has not been the most healthy for the Auricula; sharp frosty nights and clear bright days would be far preferable. The seasons in this country being so variable and uncertain, they exercise all the skill and forethought of the florist; but dull, foggy, damp weather is the most difficult to protect against, and the most injurious to such alpine plants as the Auricula. We have seen several collections lately, and they universally look unhealthy. The large leaves of last summer's growth are all decayed, and but little left of the plants except the very heart leaves, and even they (or at least some of them) are mouldy. We fear this state of things is but too general. Certainly the kinds of florists' flowers we mentioned lately are looking well yet, but we observe, here and there, a little of the spot and mildew have appeared. What can we do under these circumstances? Very little. Pick off the decayed leaves; keep all Auriculas very dry, and give abundance of air, and protect from wet; place fresh ashes under the pots. Mildew on *Carnations*—dash some sulphur upon the leaves, and see the plants are not dry.

T. APPLEBY.

THE KITCHEN-GARDEN.

CAULIFLOWER PLANTS in pots, intended for turning out next month under hand-glasses, or on sloping warm banks, &c., should at once have their final shift, if not already done; and care should be taken to keep them close to the glass, so as to keep them vigorous. The lights should be taken off during the whole of every suitable day, and air should be admitted both at the back and front every mild night. The roots must not be allowed to get dry. If the plants are deficient in strength or size, tepid liquid-manure applied in moderate portions would remedy any defect of this description. The plants under our charge, which were sown in the last week in September and first week in October, potted in a very young state into thumb-pots, and afterwards shifted, are now well-established large plants in seven-inch pots, and will shortly be turned out into well-prepared soil, under hand-glasses, in the valleys, between high sloping banks; others will be planted on the warm sheltered sides of sloping banks, with no other protection than the rough ridged earth. Those placed under the hand-glasses, with some future care and attention, in the way of airing freely at all times in genial weather, applying dry dust about them when wet, cold, or frost prevails, and repeated surface-stirrings in genial weather, with an occasional application of tepid liquid-manure and raising the hand-glasses with earth formed round them in a ridge, in order to prevent their being crumpled or bruised, will produce fine cauliflowers in the month of April; by sowing in succession, from the present time until October next, *cauliflowers* may, with energy and contrivance, be produced throughout the year.

BROCOLI.—The early varieties now coming in should have some attention, with regard to the protecting of their hearts, by placing over them some outside leaves. If severe frost prevails, then fern, pea-haulm, straw, or evergreen boughs may be used to considerable advantage.

HORSERADISH.—The present is a good season for trenching out and replanting. The bed of Horseradish to be trenched out, according to our practice, should have first wheeled on to the surface a quantity of decayed vegetable refuse, coal-ashes, and any other kind of spare refuse, to the depth of ten or twelve inches; a trench should then be taken out at one end, the same way as the rows run, to the depth of two feet, and two feet wide; the bottom forked up with a quantity of the manure with it. Some forked-rooted Horseradish, with strong crowns, should be selected as the work proceeds from those trenched out, and placed standing against the base of every two-feet trench, one foot apart, having the manure regularly mixed in with a portion of earth with the digging forks as the work proceeds, leaving the soil in ridges; by which process the crowns are left between each ridge. If these ridges are kept well surface-stirred in suitable weather throughout the spring, about May the crowns thus buried will have made considerable growth, when the ridges may be levelled down evenly all over, and the crowns will push through the whole by midsummer. If the soil is very rich, light, and well pulverised, fine clear, white, well flavoured roots of Horseradish will be produced the first year; but in general it answers the purpose best to stand two years before trenching it out, when a good crop of large straight roots fit for table will be obtained. In the event of there not being rough forked roots enough for replanting, we take off the side crowns from such as can be spared from the crop put by for use; and our practice is to keep it always thoroughly clear, and an open loose surface by frequent surface stirrings.

POTATO PLANTING.—If not performed in autumn, an early opportunity should be taken; it having been so well and satisfactorily ascertained that early planting is the system the most safe and secure, and that in late planting there is no certainty. This will be found a good season for placing a quantity in heat, for sprouting in readiness for transplanting on slight hot-beds protected by frames, hoops, &c.

MUSHROOM BEDS.—Those now in bearing, if protected with litter, should have strict attention with regard to keeping them clear from short mulch; with those not covered, and which are grown by the assistance of a little heat, care should be taken not to allow any cold currents of air to pass through the structure; a kindly humidity should be kept up by occasionally sprinkling the floor with tepid water. Make new beds in succession by collecting together good stable manure, working in amongst it, when the bed is formed, a sufficiency of loam to maintain one uniform warmth and moisture. The mushrooms grown on this principle will be firm, heavy, and short-legged in quality; and the beds will continue to produce abundance for many weeks, if not months, with strict attention to the above directions; and when the bed has been in bearing some time, and the produce is consequently of lighter quality, applications of tepid liquid manure should be applied, brewed from cow, sheep, or deer dung, which will cause the production to be much improved both in quantity and quality.

CHARRING.—A store of every kind of refuse pruning and every kind of spare rubbish should be collected and stored for the process of charring in due season, so as to be in readiness for the spring seed time. With us, the greater part of December was remarkably mild, and the present month, up to the present date, has been remarkably warm, humid, and exciting; at 4 o'clock, a.m., this morning (January 12th), the thermometer stood, out of doors, at 48°; it has been from 45° to 55° at night up to this time, and above 60° occasionally at midday in a northern aspect. So excitable is this temperature that some of the varieties of thorns (Devon) are opening into full leaf; plums are coming into blossom, and buds of the wall fruit-trees, espaliers, pears, &c., are just ready to burst open. The birds are merry with song; amongst them are the king-dove, generally known as the ringdove, the mistletoe thrush or storm cock, the grey or song thrush, the robin, and hedge sparrow; and the beautiful warbling of the wood lark is also heard at the present time amongst our merry songsters. No doubt but we shall have some cold and searching weather at a season we shall find it very ungenial. JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

A SOURCE of extreme mischief among cottagers, is the habit of day labour for the wives and mothers. It is most uncomfortable, in the best light in which it can be viewed; but it is highly injurious in others. I know well, that the wives of spendthrifts are compelled to work, because by their own exertions alone they can obtain money for their families, and in such cases we can only mourn over the cause that drives them from their homes; but where this is not the case, the woman would be doing her duty better by staying at home, looking after her children, mending the clothes, and making the most of the simple food they can obtain, than by earning sixpence a day by labour. In the latter case she goes out so early in the morning, that all things are left in dirt and confusion; the little children are either dragged after her, to sit and play under a hedge all day in the dirt and cold, or they are turned over to a neighbour's care, or left under the charge of a cross, idle, mischievous girl, little older than themselves, who teaches them bad words and worse ways, and very likely injures their health and limbs, by neglect and carelessness. After working hours are over, there is no time to make the house and children comfortable—to get any food prepared—or to mend the clothes that have been torn or injured by toil. The husband finds all in disorder when he arrives, and either has patiently to endure the misery of such a cottage evening, or goes angrily off to the beer-house, to close his day amid the wretched company who are there assembled.

I remember last summer returning from a walk between eight and nine o'clock in the evening, and we entered a cottage to leave some trifling message, on our way. The scene of discomfort I shall never forget, and it impressed my mind strongly with the mischief arising from this custom. The fire was just lighted up, the pot was waiting to be put on, and the wife was on her knees upon the dirty, wretched floor, peeling potatoes, with the help of her little girl. Oh, what a home for a husband to return to, after a long harvest-day, when his first craving must be for food, and the next for rest! We could not help exclaiming at seeing only preparations making at such an hour for her husband's return; but the poor woman was an ignorant, helpless, unpersuadable creature, and she could say nothing but that the "tatoes would be ready 'an bye," as soon as she could do them, and there we were obliged to leave her. At the little wicket we met poor Martin and his two boys, all

looking labour-soiled, tired, and hungry; and our hearts ached for the poor fellows obliged to wait nearly an hour at least, till the potatoes were boiled at a gallop, and dished up wet, and sodden, and unwholesome. Fortunately no beer-house was to be found within reach, and Martin is, besides, a sober as well as a quiet hard-working man; but such ways as these are very trying to a man, and have often changed a husband from a steady one into a drinker.

On another occasion, calling at the same cottage, we observed a little child with his petticoats all burnt away on one side, and the tatters hanging dismally about him, like the sketches of Irish wretchedness which we sometimes see in illustrated newspapers. On inquiry, the mother said she had been drawing water a few days before, when startled by the screams of her child, who had set himself on fire, while her back was turned. She very quietly said she had no other clothes to put him into, and it did not seem as if she had thought of mending and patching them, for the child was going about as if nothing was the matter. Only a few weeks ago, this very woman was caught in our own plantations, tearing off the larch boughs with a hook fixed to a long pole, and teaching the same wicked practice to her son who was assisting her. Upon my sister's remonstrances with the *parent*, the *child* was in floods of tears of shame and grief, for he had always been an honest good boy in his daily conduct. The pain of convicting a mother before her child was severe, but in this case it could not be avoided.

Thus, in very many cases, the day labour of the wife leads to great evils. Her home duties are neglected, unthriftiness leads to want, want to dishonesty, and guilt and shame. Many are obliged to pay for needlework being done for them, to hire a girl to take care of the children, besides wearing out their shoes and clothes much faster than if they staid at home; and all these expenses fully swallow up the weekly gain.

We have heard some labourers say that they will not allow their wives to work, on this very account; and that they are even gainers by so doing. In one instance when this plan was followed for some time and then given up, the different appearance of the cottage was marvellous. We used to see the neat wife sitting at work, clean and quiet, when the house was in order, and the little one's fed; whereas in the other case, when she was to be seen at home, she was running after her work as it were, with untidy dress, her cap at the back of her head, and her house full of dirt and litter, with screaming children, and a girl slapping and scolding them.

These may seem trifles to write about; but to those who see and observe the internal arrangements of cottages, and who know how much domestic comfort has to do with the well-being of man, and how many evils arise from its neglect, they are *not* trifles, but matters of great moment. A happy, well ordered peasant's family is, if possible, a more beautiful and gratifying sight than even among the upper classes. It seems to have more to do with England's welfare and stability; and there is a simplicity and *nature* in all that concerns the poor, that is peculiarly refreshing and agreeable to the mind, when they are respectable and well conducted, and *especially* when they live in strict accordance with the life-giving doctrines of the Word of God. Whatever, therefore, tends to this end, should be pointed out, and as much as possible encouraged; and I cannot but think, from my own observation in conjunction with that of others, that to be "keepers at home" applies to woman in every rank, when she has become a wife and mother, and is essentially necessary to the personal, moral, and religious improvement of the peasant's family. Lawless, untidy, unsettled habits arise from being constantly away from home; neglect of the proprieties of life comes on, and very soon a vital sin is committed by the desecration of the Sabbath; for a woman who is never at home from Monday morning till Saturday night, except for an hour or two in the evening, will be strongly tempted to stay away from church and do many things for which she has no time in the busy week.

Should these remarks meet the eye of the cottager, I would recommend him to consider them; and if he is induced to try the plan, by allowing his wife to give up, for a time, weekly labour, where they have a family, and should find the comfort and advantage arising from it, in a cleaner house, well-mended clothes, better order, well-behaved children, and more comfortable ways, I shall rejoice most truly, and hope that others may do the same. But in this case as in every other, I must observe, that whatever is undertaken and carried on without the *blessing of God*, without a *daily* and *hourly* dependance upon His Grace and help, however good it may be in fact, will *never* prosper. It may for a time look fair to the eye, but a canker is within; and in an hour when we are not prepared for it, our brightest prosperity will be clouded over, and our fairest hopes wither and die. Let us *all* consider this.

HISTORY OF AN APIARY.

ONCE more I resume the thread of my last year's apiarian reminiscences, after the long interval that has occurred,—thanks to the intrusion of other matters of apiarian interest on our attention, since I acquainted you with the success of my three first stocks.

On referring to page 203 of vol. iii. of THE COTTAGE GARDENER, you will find mention of "two very rich hives" which "I purchased in October, each weighing over 30 lb, with a view to carrying out several interesting experiments in the spring." One of them, which was a prime swarm of the current year (1849)—as, indeed, each of them was—turned out a lamentable failure, and disappointed me. Last February saw it as active a stock as any in the apiary—the bees having well survived the winter, and continuing in vigorous health till the second week in March. From that date, however, and during the remainder of the month, a marked change in their deportment was perceptible. They now flew listlessly about, coursing in lazy circles around the hive when the sun shone warmly; but I am not aware that half a thimbleful of pollen was carried into the hive in all that time. I suffered them, however, to remain in this condition till the 5th of April, indulging the hope that they might yet recover themselves, though I might have reflected that this was an impossibility so early in the year, if, as turned out to be the case, the queen was dead; for even if the bees had reared a queen artificially out of brood left by the old queen at her death she could have come to no good, as no drones would have anywhere appeared till nearly seven weeks later, at the very earliest (i.e., dating from the 7th of March, at which time, *or before*, I suppose the old queen must have died), by which time all the surviving bees would have paid the debt of nature, and the hive have perished for want of a succession of youthful inhabitants. Be this as it may, getting tired at last of their indolence, I resolved to fumigate the hive, and at the same time to inspect its internal condition, so as to ascertain, if possible, whether my conjectures were right, and the queen were really dead. Having accordingly procured some of the *Racodium cellare* which Mr. Taylor recommends, and satisfactorily tested its power the evening before on about fifty bees taken out of another hive, I proceeded, towards six o'clock P.M., on the 5th of April—armed with the Oxford fumigator and a pair of bellows (see Mr. Taylor)—to the scene of operation. Several friends were present to witness the process, and to assist if necessary. After inserting the tube of the fumigator, and puffing awhile (the hive, be it observed, stood on its board as usual), a great buzzing was first heard, then followed a profound silence. After a few smart raps on the roof of the hive, to dislodge as many bees as possible, it was lifted up, while about 1000 bees, more or less stupified, which covered the floor-board, were swept into a large bell-glass, and covered up with a piece of muslin. On looking up into the hive a great many bees still appeared clinging to the combs, which we in vain tried to bring down. As they came very quickly to life again, the hive was re fumigated; but finding we could not dislodge more than about 300 of the remaining insects, drum away as we might (these, however, were saved as the others), I proceeded to cut out the combs one by one. The bees which were swept off these combs on to the ground were obliged to be massacred as they fell, as they came to life far more speedily than was agreeable, and not one of us was armed against them.

The result of this operation did not tend to reconcile me to the process of hive-fumigation, of which I had had no pleasant recollections before. There was much honey dropping about, defiling everything with which it came in con-

tact—not to speak of the necessity of destroying so many valuable and innocent lives in so disagreeable a manner. I now mentally resolved to have nothing to do with fumigating again—i.e., with a view to saving the lives of bees. The brimstone pit is by far the most merciful way of dealing with them, if driving will not succeed in dislodging them.

On examining the hive neither eggs nor brood appeared, nor was there a scrap of pollen to be seen (which I much wondered at), but I found about 8 lb of very good honey in the virgin comb, which would soon have been eaten by the surviving bees, or become the prey of robbers. The 1300 bees which we saved were united the same evening to one of my weak stocks, whom they very beneficially strengthened, by increasing the temperature of the hive several degrees, and so promoting a greater development of brood in a hive that might otherwise have perished, but which yielded me 18½ lb of honeycomb, and is still (December 19) in prime health.

In uniting these bees, I was surprised to find how readily they were received by the old inhabitants of the hive to which they were joined. I used the precaution of inserting a bit of perforated zinc between the glass (in which they were) and the top hole but withdrawing it in about 20 minutes, the bees fraternized with all imaginable goodwill. I observed that those new bees appeared stupid and indolent for a good while after; but my main object was effected, viz., a temporary increase in the heat of the hive,—I say temporary, for these bees could not have survived above a month I should think.

I have learnt an important lesson from this hive's history, that it is not every *prime swarm* (as such) that is worth purchasing. A prime swarm may have, and often does have, *an old queen*; hence the many casualties that occur in commencing bee-keeping. Another time when I buy a stock, I shall be careful to ascertain the *pedigree or age of its queen*, and shall prefer to purchase a two-year-old stock, provided I can learn that it swarmed *once* the year before, for then it must have *a young queen*; and I would recommend everybody else to do so too. A COUNTRY CURATE.

SHADING BEES.

I READ the theory, and the various reports of practical experience, of the numerous correspondents to your instructive periodical on the cultivation of bees with much interest and advantage. I have for some years devoted my attention to the subject. My object is amusement, accompanied by a desire to ascertain whether these busy little insects can or cannot be made a source of profit to the industrial classes; and on that, I confess, I am still undecided. I hope, however, yet further to develope the subject myself, and to witness its development by others; and to effect this I know of no better plan than by the experimentors recounting their experience in your paper;—thanks to you for opening your pages for the purpose. My object in this communication is to tell your correspondent, "An Old Bee-master," that his plan of placing hives in situations entirely, or nearly, removed from the influence of the sun's rays, will not *invariably* prove successful. One of the greatest annoyances I have experienced as a bee cultivator arose from trying his plan two years ago. I placed a powerful young hive under a fir tree densely covered with ivy; indeed so sheltered and dry was the situation, that during the heaviest storms the rain never moistened the covering. The bees had an excellent and uninterrupted success. They worked well, and they laboured as hard as any hive in my collection; but, alas! they lost their labour, and they perished in the attempt. Daily, during the months of March and April, I found hundreds lying on the ground, under and round about the hive, and even on the board with the product of their exertions, but physically unable to convey it to its destination. It appeared to me that the moment they left the direct influence of the sun they became paralyzed. I daily collected them together, and by means of a butter-boat literally *poured* them into the hive through a hole cut at the top, by which means, doubtless, many thousands of lives were saved. I could not endure to witness my little favourites thus "wither, waste, and die," and, therefore, I restored them to their beloved sunshine, and there they prospered, and before the end of the summer furnished me with a fine swarm. I am convinced that I should have lost my hive, had I allowed them to remain in their cheerless and sunless position. Their powers of endurance are unquestionably very great, but there is a limit beyond which nothing can extend. Do not suppose me to call in question your valued correspondent's communication, or to deny his facts. I merely desire to show from experience, that a sunless aspect will not hold good under all circumstances, in all situations, and in all seasons. It may be, that "An Old Bee-master" is warmly located in the south of the Island; my habitation is not so favoured: I reside in the county of Nottingham. I would suggest that the total seclusion from sun be tried with great care and caution, if tried at all; and, particularly, that the ground around be closely examined for bees unable to land home. Let them be collected together by means of a feather and put into the hive. I will not trespass further on your space; now, if you are not full of correspondents on this subject, and deem this letter worthy a place in your paper, I shall have much pleasure in occasionally *conversing* with my brother bee growers, through the medium of THE COTTAGE GARDENER. A COUNTRY SOLICITOR.

NATIVE WILD FLOWERS.

JANUARY.

THE floral wreath of snowy January is not a gay one, the wrath of elements seems to stifle for a time the energies of the vegetable creation, and to the ordinary observer

> "Not a leaf or sprig of green
> On ground or quaking bush is seen,
> Save grey-veined ivy's hardy pride,
> Round old trees by the common side."

While the garden border can boast of its Christmas roses and winter aconites, and the conservatory its gay chrysanthemums and camellias, the hills and hedgerows, when uncovered of their snowy mantle, present a bleak and barren aspect, with scarcely a single blossom to invite the botanist to a morning walk. Some of the cryptogamic tribes are, however, now developing their lovely forms in obscure retreats, where the practised eye of the botanist can alone detect them: to some of these interesting plants we have already directed attention since the readers of THE COTTAGE GARDENER have been enveloped in the present winter's gloom; and we shall take an early opportunity of calling their notice to other cryptogams hitherto unspoken of in these papers, believing that the gardening reader will at such a season be more disposed to listen to our remarks upon such minute objects, than he would in the midst of summer's bloom, when all eyes are absorbed in the admiration of floral fashion.

It is a true saying of the poet, that "the daisy never dies;" and although we cannot claim for this flower a conspicuous share in the January Flora, yet a stray crimson-tipped blossom of this universal favourite may occasionally be observed in the pastures and by the waysides. A more conspicuous object is the common furze (*Ulex Europæus*), which in favourable seasons often produces a profusion of flowers in January; and its clusters of golden blossoms, defended by their prickly branches, may frequently be seen shining through the melting snow. We need scarcely remind our readers that this is the plant which so delighted the "immortal Swede" on his visit to England, that on first beholding it he fell upon his knees in a transport of admiration—feeling, as Hænke afterwards did on beholding the Victoria Regina in its native waters, a deep and reverent sense of the power and majesty of God, as exhibited in the works of creation. Several varieties of this plant are in cultivation in gardens. The dwarf furze flowers in the autumnal months, in some localities extending its blooming season till the present time; although found in a few localities in Scotland, it chiefly abounds in England and Ireland. In a little work—"Wild Flowers of the Year"—published by the Religious Tract Society, which we have quoted more than once with commendation, it is stated that this plant "often grows on high lands; and *the Pentland hills are covered with the mountain gorses*," a statement which proves one of two things—either that the author has never been upon the Pentland hills, or that he does not know the one

species of Ulex from the other. We offer this remark in the hope that the error may be corrected in the next edition of the excellent little treatise.

The green flower of the ivy (*Hedera helix*) may have been observed by our readers appearing above the deep green foliage of the plant; and the holly will still look gay with its rich array of red berries in places where they have not been devoured by the birds. As for the mistletoe (*Viscum album*), it has been so frequently the subject of attention at recent Christmas and other convivial parties, that there seems no necessity for us entering upon any description of it here. G. LAWSON, F.R.P.S., F.B.S.

GREENHOUSE FERNS.

Adiantum assimile. m. 2s. 6d.
* ——— *pedatum.* m. 3s. 6d.
——— *cuneatum.* m. 3s. 6d.
——— *pubescens.* m. 2s. 6d.
* ——— *formosum.* l. 3s. 6d.
Allosurus sagittæfolius. l. 5s.
Asplenium obtusatum. l. 3s. 6d.
——— *ebeneum.* s. 2s. 6d.
——— *palmatum.* s. 3s. 6d.
**Aspidium proliferum.* m. 5s.
**Cheilanthes viscosus.* s. 3s. 6d.
Cibotium Barometz. l. 3s. 6d.
**Cyrtomium falcatum.* l. 3s. 6d.
**Darea odontites.* m. 2s. 6d.
**Davallia canariense.* m. 2s. 6d.
**Dicksonia antarctica.* Tree fern, very large and fine. 21s.
**Doodia aspera.* s. 3s. 6d.
Lomaria nuda. m. 3s. 6d.
Nothoclæna distans. Very small. 5s.
**Onoclæa sensibilis.* m. 3s. 6d.
**Onychium lucidum.* m. 2s. 6d.
Polypodium Billardieri. l. 3s. 6d.
Polystichum falcinellum. m. 5s.
**Pteris atropurpurea.* m. 5s.
—— *umbrosa.* m. 3s. 6d.
—— *hastata.* l. 2s. 6d.
—— *vespertilionis.* l. 3s. 6d.
* —— *tremula.* l. 3s. 6d.
—— *chinensis.* l. 3s. 6d.
**Trichomanes brevisetum.* m. 10s. 6d.
Woodwardia radicans. l. 3s. 6d.

CULTURE.—The above are all elegant species, hardy enough for the greenhouse. Those marked with an asterisk (*) are the most beautiful. *Trichomanes brevisetum* is a native of Ireland, found near the waterfalls about the lakes of Killarney. It requires to be kept constantly under a hand or bell-glass, in a situation moderately shaded.

Soil.—Peat, loam, and vegetable mould in equal parts will be a suitable compost, with a portion of sand and pieces of sand-stone mixed amongst it. Any part of the greenhouse will suit them, as most of them grow in shady places. *Nothoclæna distans, Doodia aspera, Pteris atropurpurea, Adiantum pedatum*, and *cuneatum*, should have an open situation. They require repotting twice a-year; first, in early spring, and secondly, about July or August. They are increased principally by division, but sometimes by seed, although this is an uncertain mode. If you like to try it, procure some rough sand-stone, or small pieces of brick, scatter the spores or seeds upon them, and cover them with a hand-glass; keep them moist by syringing with the finest rosed syringe possible, and place shallow pansful of water amongst them. The seedlings will soon come up if rightly managed, and as soon as they put out their first frond (or leaf-branch) pot them in very small pots; keep them under a hand-glass till they begin to grow again, and then give air, and gradually inure them to bear full exposure; repot and grow on as directed above. Some of the smaller kinds will grow very well in the cocoa-nut husks you speak of; and hung up in the house, they hang down and are very ornamental; or they will thrive well in wooden or wire baskets in the same way as orchids are grown. T. APPLEBY.

[This is an answer to a correspondent (*Dickey Sam*). In the list of ferns, l, stands for large, m, for medium size, and s, for small.]

BROCOLI.

SEEING in the columns of THE COTTAGE GARDENER for December 19th, some important queries by H. T., relative to the best kinds of brocoli for succession, I have been induced to forward to you my experience in reference to this subject; having been engaged for several years, extensively, in their culture for market purposes. H. T. asks for a list of six of the best varieties—two for spring; two for autumn; and two for winter; but as I am in the habit of growing more varieties than these, for the purpose of succession, it may perhaps be advisable to state my plan of proceeding, by which I secure succession nearly the whole of the year round. For spring use, I find the two best varieties, both in reference to quality, size, and hardiness, are *Elletson's Improved Wilcove*, which comes into use from the latter end of February and through March; to succeed this, *Elletson's Mammoth* I find the best, which comes in through April; and then to fill up the vacant space which occurs between this and the time when the hand-glass cauliflower comes in, I find *Sumner's particularly late White* very useful. This generally supplies me through May, and from this till November I grow the *Walcheren*. For November use I grow the *Purple Cape*, and *Snow's Imperial Hardy White Cape*,—a splendid sort, as white and as firm as any summer cauliflower. This, if sown in the beginning of May, will also come in well up till January. From this time till March, *Adam's Early White* is the best with which I am acquainted. There are many other varieties in cultivation which at times prove useful, but I think that these seven kinds are sufficient for most purposes.—J. H. KNIGHT, *Market Gardener, Battle.*

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

GARDEN PLANS.—It is requested that no more Garden Plans may be sent until next *September*. Mr. Beaton will comment upon those already sent, *but he cannot attend to any more until the month above-named arrives.*

FLOWER-BEDS (*H. B.*).—You are all right, except 5, and that would look well as you propose, but recollect you could not depend on it after the first week in September one season out of five, and that is the very worst time of the whole season to lose a bed, as you could not then supply its place. Repeat the colour of 3 with a different plant; an edging of what you propose for 5 would be effective round 2, and four and six inches from the edge. Thanks for your brevity.

FLOWER-GARDEN (*W. D. H.*).—A good plan completely spoiled by the arrangement of planting. The very same plants differently disposed would make a fine show; 2, 3, 12, and 13, outside, and largest beds in neutral colours could not be better planted for destroying the effect of the rest; 2 and 12 should change places with 7 and 10; 3 and 13 discard altogether, and repeat the colours in their opposites with different plants, having the same heights, for the sake of variety; unless you are a florist, 11 must be unsatisfactory—also the edging of 4; the rest as they are. Your P. S. has been under consideration for a long time. The great secret of making a right plan for a flower-garden, is to fix first on the arrangement of colours intended, then to know the habits of the different plants best suited for that particular arrangement, and then to lay out the beds accordingly; the usual mode is the reverse of this; a collection of beds, or groups of beds is first made, and we puzzle ourselves for years afterwards to find out the most effectual way of planting the figure.

FLOWER-GARDEN (*Naval Officer*).—We have now studied your plan and numbers. Every group would make a complete garden of itself; we never saw anything more completely finished. What you want now is a richer variety of half-hardy plants, if you have room to keep them in winter. How can you say "you know very little about gardening." Why you put us to the blush already. Who made the plan, and who planted it—Capt. Spike, Mrs. Bud, and Rosa of Key West? Celebrity could could not have done so much in double the time. Read what we have said about flower-garden plants last year; make your own selection; send us the list, and as we shall file your plan, we can tell you a penny-worth of gossip about them. *We* were not aware that the summer plant in 6 would have answered so well.

FLOWER-BORDERS (*Amateur*).—To match your border of heartsease, anemones, and ranunculus, *Nemophila insignis* sown early in September, and transplanted to the border in February, is the best. This spring try the *Tree-violet*, or some of the beautiful spotted hardy *Mimulus.*

FLOWER-GARDEN (*Subscriber, Bury St. Edmunds*).—Now you have the best design about Bury. That is the right style for a flower-garden in such a place. We have plans enough now to occupy our spare minutes for the next six weeks at least, and all that we can do, is to say that if we like a given plan, and the proposed way of planting it; it is utterly out of our power to think for others how to plant a whole garden, even of the smallest size; 8 and 10 very good; make 9 scarlet, and put no red in 4, 5, or 13, 14.

FLOWER-GARDEN (*P. V.*).—Thanks for the shortness of your letter, and the systematic way of references. Your plan, No. 1, is most beautifully arranged, and if all the plants do well on your soil, we would not alter one of them, unless it were for the sake of a change; when 4, 6, 8, 12, 10, 14, and 17, might be planted in their opposites; 7 in this figure we never heard of before. You said crimson—is that right? Plan

No. 2. Very pretty, and very difficult to manage, but we cannot alter a single bed out of more than thirty. We cannot make out 12. Do you peg it down? *Rouge et Noir* would better match 22 than the one you have in 21.

BEE-FEEDING (*S. V.*).—Mr. Payne in his usual calendar will give a description of a bee-feeder for the top of a straw hive. The *best* kind of food certainly is honey; next to that is 1 lb. of lump-sugar, ¼ pint of water, and 4 oz. of honey, boiled for two minutes; but feeding with barley sugar is far less troublesome, and equally good for the bees. It is better not to prevent the bees from coming out, except when snow lies upon the ground. You may easily grow both *canary* and *hemp* seed for your birds. Sow in March.

APRICOT SHEDDING FRUIT (*T. G.*).—Your apricot goes on satisfactorily "until the time of ripening, and then sheds its fruit, on examining which you find a speck on the stone." Surely your tree must be easily affected by drought, which during the last swelling of the fruit would produce the effect you describe. Try a mulching and thorough watering when the stoning is nearly completed.

TRAINING TO STUDS (*Clericus, Nottinghamensis*).—You find this chafes the branches, though you have used soft string. We have used strips of lead, and, twisted tight, we do not find the branches chafe. It is tying loosely, which allows motion, that causes chafing; but Mr. Errington says, "I am not assured that this is the 'sole objection' to the training to studs or nails. The loss of heat is so considerable by the greater amount of detachment in the shoots from the wall, that here (Cheshire) we were compelled to give up the idea some years since."

VINES OVERCROPPED (*Constant Reader, Birmingham*).—Your "jobbing gardeners" have made a sad job of your vinery. Like many other new vineries, they have been too greedily loaded with fruit—a great fault with young vines. We much doubt, too, the character of the border: perhaps too much manure in the compost. If so, a little "bounce" for a year or two is ill repaid by a progressive falling away. You must see to the border, and prune closely where immaturity is perceived in the shoots. Perhaps you will have to write again.

CAMELLIA BUDS DROPPING (*Leicester*).—Your plants are very healthy, and you do not think they are in want of water. Is the drainage all right? because when the flower is just opening, a very dry or a clammy saturated soil would produce the effect complained about. We almost incline to think from your description that the plants are too dry. If the drainage is all right, to make sure of the whole ball being saturated it would be well to set the pot in a tub of water of about 60°, and let it drain afterwards. Manure water will be of benefit *afterwards*, but not strong. Give also plenty of air.

FLOWER-GARDEN (*One who loves a Garden*).—Your two plans are capitally planted, and plan No. 1 is very well laid out; plan No. 2 looks the prettiest on paper, but the laying out is on a wrong principle, and here is the proof: bed No. 1 is the tallest, and looking at it from any point round the garden, you cannot see what is beyond it, therefore what comes between the eye and it, all round, should agree with it, either in contrasted colours or height of plants. Looking across 12 and 6 in September, you have the only view in the whole design which gives the graduated heights and good contrasts. The outside plants all round from 12 to 13, are too high for those in 3, 4, 5, and in 7, 8, 9, so that to make the best of this design, No. 1 should be the lowest, and of mixed plants, to keep it of a neutral tint. If it could be seen from above, your own planting would be best. Many thanks for your brevity.

FLOWER-BEDS (*Adeline*).—You misunderstood the notice about flower-gardens, we did not say that we would fill up a single bed, much less a design; we only criticise designs already planted before our eye, as you see in the notice next above; all that we can say is, that the shapes of your beds are very good. The *canary plant* is the common annual climber, *Tropæolum canariensis*, as easy to get from seeds as mignonette, either in heat, or in the open borders. It is best to sow it in a warm frame at the end of March, and as soon as it is up an inch or two to remove it to a cooler place.

WORMS IN POTS (*One, &c.*).—A watering or two with lime-water or weak soot-water would be disagreeable to them, but the most effectual way is to turn the balls out of the pots occasionally, and search for them.

COLOURING ROCK WORK (*C. A. W.*).—There is no more secrecy in giving any tint of colour to artificial rock work, than to a street door. We have stood by the side of Mr. Gay, the eminent rock work artist, who coloured, and we believe, arranged the rock work you name, by the hour, and saw all his process from first to last. We have also stood by the side of the highest artist in rock work among our high nobility, directing a country bricklayer to fashion large lumps of brickwork into "artificial stone," which we have afterwards seen to puzzle good geologists, and from an early acquaintance with rocks, not to be imitated; we should say October is the best time in our climate to colour artificial rock, for this reason, that while the colours were yet fresh, the most minute lichens and mosses which inhabit the rocks, if native among us, are easily fastened to the surface, at the best time of the year for transplanting them, and so give the "rock work" at once a stamp of antiquity. Cement and the common colours of the painters, with proper stains, also from the paint shop, are all the mystery; the effects produced are according to the skill of the directing genius.

PORCH (*J. R. P.*).—Plant *Princess Maria*, and *Felicite Perpetuelle*, climbing evergreen roses, and they will soon cover it.

BLIGHTED CHERRY (*An Inquirer*).—It is very evident we were right in requesting a more definite explanation, because it is now from your explanation certain that what you call blight is *canker*. "The young shoots die away." We have often seen similar cases, and in every instance have found that it arose from the roots being in stagnant water. Your garden probably requires draining. We know of no remedy against the caterpillar of *Mamestra oleracea*. Frequent hoeing and sprinkling a little gas lime round the plants might be effectual. The *Forget-me-not* for your garden should be obtained from the fields; any common garden soil will suit it, and you may plant it now. *Verbena cuttings* treated as recommended at page 352 of our last volume, will not be lost as complained.

CUCUMBER SEED (*J. T. C.*).—You may obtain Latter's Victory, Victory of Bath, and Duncan's Victory, of any of the seedsmen who advertise in our columns. You cannot make *Gas Ammoniacal Liquor* in the way you propose.

GRASSES FOR A LIGHT SOIL (*Subscriber*).—In laying down your pasture on a light soil resting upon magnesian limestone, we should sow barley by the drill this spring, and then previously to rolling *Alopecurus pratensis*, 1 lb.; *Dactylis glomerata*, 3 lbs.; *Festuca duriuscula, elatior, pratensis*, and *rubra*, 2 lbs. each; *Lolium italicum*, 5 lbs.; *L. perenne*, 8 lbs.; *Phleum pratense*, 1 lb.; *Poa nemoralis, sempervirens*, and *pratensis*, 1 lb. each; *Medicago lupulina*, 1 lb.; *Trifolium pratense*, 1 lb.; *T. pratense perenne*, 2 lbs.; *T. repens*, 4 lbs.

CHARCOAL FOR DISINFECTING (*Clericus Rusticus*).—There must be something wrong in the arrangement of your tank for liquid-manure. The one we know constantly in use has all choking prevented by the pipe discharging itself into a very open wire basket, which retains all solids. Any charcoal will act as a disinfector, even common wood charcoal.

STOPPER FIXED IN DECANTER (*J. W. B.*).—Dip the neck into hot water, or coil a piece of string once round the neck, and draw it rapidly backwards and forwards until it becomes very hot; this will make the neck expand and release the stopper.

LAMP IN GREENHOUSE (*H. P.*).—A small oil lamp in your greenhouse will not produce a sufficient amount of gas to be injurious to your plants, but we should enclose it so as to render the place dark at night, for light is stimulating to plants. The Club moss and the cutting are ready for you, but we have received neither your direction nor the stamps. We do not know any one who would supply you with fern spores.

FUCHSIA SUCKER (*T. M. W.*).—Stop it to make it branch, and then let it grow.

LILIUM LANCIFOLUM (*J. Newman*).—*Lilium album* is white; *punctatum*, white and spotted; *cruentum*, crimson; *roseum*, pink; and *rubrum*, red; they are all beautiful, so select the colours which best please you.

SALT AND SOOT FOR POTATOES (*A Subscriber*).—The salt and soot may be mixed at the time they are required to be applied. The frost will not cut off your potatoe tops, unless we have unusually late frosts, if you do not plant until February. It is only slightly injurious for the tops to be frost-bitten, if they have only just appeared above ground. The stems come up and leaves are formed again.

FUCHSIA SOWING (*A. W.*).—Sow in March or April in a sandy soil on a gentle hotbed, with a bottom-heat of 70°; no water is required until the seedlings are above ground, then water gently, and give air freely, or they will damp off. When they have their second leaves, prick them out five together in a 5-inch pot. At the next potting, put them singly into 2½-inch pots, and afterwards you may put them into larger pots, or plant them in your borders. The three first volumes of THE COTTAGE GARDENER may still be had, bound in cloth, at 6*s.* 6*d.* per volume. Any wholesale dealer ought to supply you with *glass*, not larger than six inches by four, at three-halfpence per foot, in quantities not less than one hundred feet.

HIMALAYAH PUMPKIN SEED.—Any one requiring these, may send an envelope, *ready directed*, with two postage stamps, to *Mr. C. Stevens, Box 472, Post-office, Bristol.* We shall be glad to hear the result of your potato practice.

SOLUBILITY OF EARTHS IN WATER (*Rev. C. A. A. Lloyd*).—Liebig (page 87) states that precipitated silica possesses a certain degree of solubility even in *pure* water; and at page 88, he states that water distilled in glass vessels dissolves a portion of their earthy matter. But in soils, we have not to deal with pure water; and whoever will take the trouble to analyze drainage water, will find not only saline, but siliceous and aluminous matters in them. "That silex is dissolved in water by processes of nature can scarcely be doubted, since it is found in considerable quantities in a crystallized form."—*Henry's Elements of Chemistry*, i. 255.

HARDY FLOWER CULTURE (*S. P., Rushmere*).—Thanks for your suggestion. We are aware of the many cottages springing up in almost every county, in connection with Building Societies; and we will endeavour to have a series of articles on hardy herbaceous plants, and other things that grow readily in our borders.

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WEEKLY CALENDAR.

JANUARY 30—FEBRUARY 5, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
King Charles I. martyred, 1649.	30.362—30.173	42—24	E.	—	45 a. 7	43 a. 4	6 39	28	13 34	30
Hilary Term ends.	30.190—29.900	50—40	S.E.	0.38	43	44	7 21	29	13 43	31
Barren Strawberry flowers.	29.799—29.715	55—47	S.W.	0.02	42	46	sets.	●	13 52	32
4 S. aft. Epip. Pur. Candlemas	29.816—29.727	56—41	S.W.	0.01	40	48	6a. 7	1	14 0	33
Hen sits. [Day.	29.933—29.821	57—25	W.	—	38	50	7 11	2	14 7	34
Gossamer floats.	29.975—29.795	49—36	S.W.	—	37	52	8 15	3	14 13	35
Laurustinus flowers.	29.634—28.977	49—39	S.W.	0.16	35	54	9 20	4	14 18	36

George III. ascended the throne in 1760, a new era—a golden gardening commenced. We have nothing to do in these pages consideration of whether he and his first favourite minister, the Bute, were wrong in their politics, and we will rest satisfied here knowledge that they were good patrons of all the arts and connected with the cultivation of the soil. It is true they passed upon cider, and that in the apple orchard counties they dressed re in Scotch plaid with a blue riband to represent the Earl, and e was made seemingly to lead an ass royally crowned; but the was no detriment to the cider manufacture, and posterity must e to the memory of a monarch and a minister who aided more of their equals in modern days to advance the agriculture and g of England. Foremost among the measures which aided this benefit was the establishment of Kew Gardens; and the death st curator, William Aiton, happening on the first of February, propriately leads us to their history in connection with the few s of his life that require the biographer's notice. Sir William the present able curator of those gardens, has published the sketch of their progressive formation:—

the middle of the seventeenth century, the spot that now forms l Gardens of Kew, together with a residence called *Kew House*, l to R. Bennett, Esq., whose daughter and heiress married Lord This nobleman was much addicted to cultivating plants, and is ave introduced several new trees and fruits at Kew, which he had from France; among them two *Lentisks*, or *Mastic Trees*, for paid £40 (a large sum 200 years ago) to one Versprit, and four riped and variegated *Hollies*, costing £5 each tree. In Macky's *ough England*, published in 1724, mention is made of "the fine excellent gardens, said to produce the best fruit in the kingdom, g to that great statesman and gardener, Lord Capel." Kew nd grounds then passed into the hands of Mr. Molyneux, who retary to King George II. (when Prince of Wales), and who Lady Elizabeth Capel. He was well known as a man of literature stronomer. With an instrument of Mr. Molyneux's own con-, and in those very grounds, Dr. Bradley made the valuable es relating to the fixed stars, to commemorate which an inscription ed by the late King William IV. on the pedestal of a sun-dial, ands on the identical spot which had been occupied by Dr. Brad-scope, upon the lawn opposite to the present palace. The Prince , who was son to George II., and father to George III., admiring tion of *Kew House*, took a long lease of it from the Capel family e year 1730, and began the pleasure grounds, containing nearly . They were completed by his widow, Augusta, Princess Dow-Wales, who delighted in superintending the improvements, then n upon a most extensive scale. At this time Sir W. Chambers loyed in decorating the gardens at Kew with temples, &c., an of which he published in a large folio work, with many plates d to the Princess Dowager of Wales), under the title of "Plans, ns, Sections, and Perspective Views of the Gardens and Buildings in Surrey, the seat of H.R.H. the Princess Dowager of Wales." tic department of this garden was commenced by the same and much favoured by the Earl of Bute, about the middle of teenth century. Many of the finest foreign trees were con- by Archibald, Duke of Argyle (styled by Horace Walpole the ngerl), who sent them from his once richly stored garden at , near Hounslow. We find that in the year 1759, Mr. W. Aiton, of the celebrated Philip Miller, of the Chelsea Physic Garden, ed in charge of the Botanical Garden at Kew,—a gentleman no nguished by his private virtues than his knowledge of plants, t skill in cultivating them. His professional abilities quickly him the notice of the late Sir Joseph Banks, and a friendship ced which subsisted between them for life. About the year Majesty George III. purchased Kew House, which was soon ds pulled down, and its furniture removed to an older mansion, own by the name of *Kew Palace*, and once the property of Sir Hugh , who is mentioned as "the rich gentleman who was knighted n Elizabeth at Kew." This small but picturesque red brick , which appears to be of the date of King James, or Charles I., hased in 1781 for Queen Charlotte, and was long the favourite residence of the Royal Family. Her Majesty evinced much in the increase of the collection of plants; and justly does the James E. Smith, President of the Linnæan Society, bear testi- the Queen's love of Botany, when he says "that the genus *a* (so called by Mr. Aiton) stands on the sure basis of botanical ge and zeal, few persons having cherished the study of nature fently, or cultivated it so deeply, as her Majesty." Under such , and aided by the enlightened patronage of Sir Joseph Banks, nly to be expected that the garden of Kew should become d all over the world. So early as 1760, the great or old stove t by Sir William Chambers: it still exists, and must have been a ble structure for that time of day, being 114 feet long; the ccupied by the bark stove, is 60 feet long, 20 feet wide, and 20 h, exclusive of the tan-pit; while the two ends formed dry ach 20 feet long, 18 feet wide, and of the same height as the part.

l the noble Orangery was erected also by Sir William Chambers. ures 145 feet in length, its width 30 feet, and its height 25 feet. In the same year was added the very elegant Temple of the Sun, as it is called, of the Corinthian order, and some young trees were planted near, which are now grown to be among the most beautiful in the garden, particularly an *Oriental Plane* and a *Turkey Oak*. Such had been the increase of plants, that in the year 1788 a greenhouse was built for Cape plants, 110 feet long (which still remains); and another for the vegetable productions of New Holland, nearly the same size, was added in 1792. (This has been much improved under the name of the "Australian House.")

The voyage of Captain Cook and Sir Joseph Banks round the world; those of Captain Flinders and Mr. Robert Brown (*Botanicorum Princeps*), and of Mr. Allen Cunningham to Australia; the expeditions of Bowie and Masson respectively to Brazil and the Cape of Good Hope—all these enriched the gardens of Kew with the vegetable productions of the southern hemisphere to an extent unparalleled before or since; besides which, other collectors were employed abroad during a long period of years in various countries, and the produce of their researches was deposited at Kew. On various occasions, especially during the life of King George III., other houses, stoves, and pits were erected, as occasion required; but it must be confessed that on the demise of that revered monarch, and of Sir Joseph Banks, whom his Majesty so much delighted to honour, and who died shortly after the king, the establishment languished and suffered from want of royal and scientific encouragement. During the reigns of George IV. and William IV., with the exception of a few plants being transmitted by occasionally employed collectors, and one hothouse being erected by the last-mentioned sovereign (and it is but right to add that this conservatory is eminently handsome and ornamental), the Botanic Garden retrograded rather than flourished; and matters must have been much worse but for the truly parental affection cherished towards it by Mr. Aiton, and the able exertions of his foreman (now the curator), Mr. John Smith. Throughout the country an opinion existed, which soon began to be loudly expressed, that either the Gardens should be entirely abolished or placed upon a very different footing, and rendered available, as a great scientific establishment, for the advantage of the public. Government was, happily, ready to respond to this latter feeling; and in 1838 the Lords of her Majesty's Treasury appointed a committee to inquire into the management, condition, &c., of the Royal Botanic Gardens. The result was, that in May, 1840, a return was made to the House of Commons, in the shape of a report by Dr. Lindley, who, at the desire of the committee, had surveyed the Gardens, in conjunction with two well-known practical gardeners. It resulted from this investigation, that the whole of the Gardens, Pleasure Grounds, and Park were transferred to the department of the Commissioners of Her Majesty's Woods and Forests. Mr. Aiton (son of the original curator), on the eve of the fiftieth anniversary of his holding office, retired from the charge of the Botanic Garden; and the present director received instructions from the board to enter upon his important duties in the spring of the year 1841, and to prepare, as speedily as possible, a report of those alterations which were deemed essential for rendering the gardens useful to the public at home and to our colonies abroad.

Under their present management—embracing as this does the scientific attainments of Sir W. Hooker and the high horticultural skill of Mr. Smith—the Kew Gardens are elevated to be one not only of the richest repositories of plants, but also the grounds where some of the best skill in cultivating them is demonstrated. For tenpence any one may go from London to Kew in a steamer; and we pledge ourselves that any of our readers who will so expend that sum shall be grateful to us for one of the most delightful summer's day excursions he ever profited by. The gardens are gratuitously open to the public every day of the week but Sunday, and in their walks, glass structures, and museum are collected rarities such as can be found in no other establishment of the kingdom.

William Aiton was born near Hamilton, in Scotland, during the year 1731; and when he started from his native village at the age of twenty-three—sanguine as he was, and well stored as he was with good practical gardening knowledge—he could not, even in his brightest visions of the future, have anticipated the success and the eminence towards which he was moving. It would seem that he became gardener to some gentleman near London, and that attracting the attention of Mr. Philip Miller, then curator of the Chelsea Garden, he readily accepted employment in that establishment. This was the foundation of his promotion, for he here acquired that sound botanical knowledge without which he must have worn the blue apron for life; and we hold him up to all young gardeners as another instance of the varied advantages arising from the combination of practice with science. We have seen that in 1759 he was appointed to preside over the Kew Gardens, and he obtained this appointment because of his great knowledge of plants, united as it was to an acquaintance and readiness with the modes of cultivating them. His success in his new office did not disgrace the judgment which had selected him.

A catalogue of the plants in the exotic garden of Kew was published by Dr. Hill in 1768, and a second edition the following year. A far more elaborate and important work appeared in 3 vols. 8vo., accompanied by some admirable plates—the *Hortus Kewensis* of William Aiton, in 1789, giving an account of the several foreign plants which had been introduced into the English gardens at different times, amounting to 5,600 in number; and so much was it esteemed, that the whole impression was sold off within two years. Mr. Aiton did not long survive this publication, for he died in 1793, in the sixty-third year of his age, and lies

buried in the churchyard at Kew, near the graves of his distinguished friends, Zoffany, Meyer, and Gainsborough. He was succeeded by his son, W. Townsend Aiton, Esq., who was no less esteemed by King George III. than his father had been, and who, besides conducting the botanical department, and taking charge of the extensive pleasure grounds, was also employed in the improvement of the other royal gardens, in all which he displayed great skill and judgment, and an intimate acquaintance with his profession.

George III. duly appreciated the talents and services of Mr. Aiton, and rewarded them in 1783, upon the promotion of Mr. Haverfield, by adding to his other appointment the lucrative superintendancy of the pleasure and kitchen gardens at Kew. Nor did Mr. Aiton acquire the esteem only of his sovereign, for when the power to serve had passed for ever, the good and the highly gifted still demonstrated their regard—for Sir Joseph Banks, Dr. Goodenough, Mr. Dryander, Dr. Pitcairn, Mr. Dundas, and Mr. Zoffany accompanied him to the grave as supporters of the pall. That he merited such a demonstration of regard we may believe from this testimony of one who knew him—"The evenness and mildness of his temper, founded in real piety, were almost beyond example; hence he became admirable in every social office: a steady friend, a most affectionate husband, a kind father, and to the meanest of his servants and attendants uniformly gentle and humane."

METEOROLOGY OF THE WEEK.—At Chiswick, according to the observations of the last twenty-four years, the average highest and lowest temperatures of these days are 43.7° and 32°, respectively. The greatest heat, 56°, was on the 2nd of February, 1845. On 69 days rain fell, and 99 were fine.

WE are in that position now, with our amount of circulation—a circulation far larger than that of any other gardening paper,—to make an effort to supply what we find to be more than one want felt by our readers. The most prominent of these wants is told in many postscripts of letters now before us, and they all coincide with this one from a well-known clergyman:—"Why do you not give us more advertisements relative to seed dealers?" And the gardener of a large establishment writes to us specially for an answer to this query—"Where can I get cheapest, good glass for our new pinery?" Now, the answer to these queries is one and the same—The seed dealers and the glass manufacturers do not send us their advertisements, and we cannot feel justified in saying to any one, Deal with such a firm in particular, when we know there are many equally deserving.

Now, we are quite ready to increase the size of THE COTTAGE GARDENER, *without any extra charge*, if advertising parties will aid us. We will devote four *additional* pages exclusively to advertisements. We can hold out no other inducements to advertisers than the three facts, that we find our readers very generally require such advertisements—that we are at liberty to refer to some of those who do advertise with us for information as to the results—and that we circulate among the gentry and gardeners of the United Kingdom thousands more than our gardening contemporaries. These considerations ought to have the influence we wish; but we beg no one to anticipate that we purpose making any reduction in our charges—this we shall not do, not only because of the extra expense for paper and printing that we shall incur, but because we give fuller advantages to the advertiser than he can reap elsewhere for similar charges, advantages greatly increased by our having made arrangements for inserting all future advertisements in both our Weekly Numbers and Monthly Parts, without additional charge. We may refer to MR. DUNCAN HAIRS, *Seedsman and Florist*, 109, *St. Martin's Lane, London*, and to MR. TURNER, *Neepsend, Sheffield*, for testimonies as to the benefits they have derived from advertising in THE COTTAGE GARDENER.

So many have been the applications we have recently received for information relative to the *Knol-kohl*, or *Kohl-rùbi*, that we have taken some pains to gain information we can rely upon relative to this very desirable vegetable; but before we give the results of our information, we will insert this extract from the letter of a Jersey correspondent; because the evidence it contains from General Le Couteur, sustains that which we have gathered from elsewhere:—

"A field officer, a most accurate observer, to whom Jersey is indebted much for its marked advance of late years, mentioned to me that he has found the KNOL-KOHL one of the most productive crops which he has yet tried. He considers the flesh more solid than, and the size nearly equal to, that of the Swede turnip; while it resembles the cabbage in appearing to improve in growth by transplantation. But the really superior point in his estimation is, that it communicates no flavour to the milk or butter of cows fed upon it. This last quality would render it second only to the parsnip; but I confess the well-known chemical composition of the *Cruciferæ* makes me sceptical of their enjoying such an immunity.

"The General, however, is very anxious to have your opinion on the subject, and the benefit of either your own experience, or of that of some of your truly scientific correspondents, from whom we so often get valuable hints, the result of observation and reflection, not the mere chronicle of some lucky accident."

The Knol-kohl, or Kohl-rùbi of the Germans, is the *Brassica caulo-rapa* of botanists, the Turnip-stemmed Cabbage of the English, and the Chou-rave of the French. It is sometimes called, also, the Cape Cabbage. The stem is thick, rises about eight inches out of the ground, is swollen into a globular form, very like a large Swedish turnip growing above ground, and is crowned with leaves, slightly scolloped on the edges, undulated, and milky green, like those of the turnip we have mentioned. There are several varieties of it, and some one or other of them are very common in the north of Europe, especially in the cottage-gardens of Poland and Sweden; but the green-stemmed and the purple-stemmed (especially the latter) are to be preferred.

The summary of the highly satisfactory testimony we have received in its favour, amounts to the following:—It is sweeter, more nutritious, and more solid than either the Cabbage or White turnip; will produce a greater weight per acre than the turnip, and prefers a heavier soil than that root; is hardier and keeps better than any other bulb; and imparts very little of that flavour either to milk or butter known as *turnipy*, and so objectionable to all palates. So much relished is it both by cows and sheep, that they will leave either turnips or cabbages to partake of it. Hares and rabbits are so fond of it, that where they abound Knol-kohl can scarcely be grown. It deserves remark, also, that cattle eat the leaves more readily than they do those of the turnip, as they are less bitter.

The mode of culture usually pursued is to sow them in the first week of March, and the plants are put out in

ane in rows four feet apart, if the soil is fertile, but aly three feet if the soil is less productive, and three et from plant to plant in the rows. The plants must ave the chief part of their stems left uncovered by the oil. Two pounds of seed produce enough plants for an cre. It is an excellent crop for cleaning the soil, as the width between the plants and rows enables the hoe to be efficiently used, and during a lengthened period. When blanks occur, these may be filled up from the seed-bed with fresh plants.

The produce is from eighteen to twenty tons, and upwards, per acre; the bulbs may be kept sound and nutritious until very late in the spring, even much later than the Swedish turnip. When given to cows, it promotes the secretion of milk, and sheep fatten upon it rapidly.

We consider the Knol-kohl a very valuable crop, both for the farmer and allotment tenant, who has either a cow or a pig; for the latter thrives well upon it, especially when boiled. But it is also used as a dinner vegetable, being peeled, quartered, boiled, and served up with a white sauce, like the Jerusalem artichoke. The young sprouts are very good also in spring, and especially if forced and blanched early. For household use, a second sowing should be made at the end of August, the young plants to stand the winter, and to produce bulbs for use in the spring.

For some time we have had before us the very excellent *Catalogues of Seeds, Plants, &c.*, published by Messrs. Rendle, of Plymouth; Messrs. Knight and Perry, of Chelsea; Mr. Duncan Hairs, of St. Martin's Lane; and Messrs. Lawson, of Edinburgh; and we had purposed to point out the particular merits of each; but we have refrained from so doing, because we have long thought that both we and our contemporaries have been unjust to the trade generally, by inserting such notices except in cases of extraordinary improvement. Our advertising columns are open to all, and they are the proper place for acquiring attention to articles offered for sale.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

Mr. Jackson's Pitcairnia (*Pitcairnia Jacksoni*).—*Botanical Magazine*, t. 4540.—The genus Pitcairnia was named by Charles Louis L'Heritier, a French botanist, about the year 1777, to the memory of Archibald Pitcairne, a physician, and author on medicine and natural history. He studied divinity and law in his native university, and medicine at Montpelier, whither his health obliged him to go. He was the most renowned practitioner of his day in Edinburgh, and had held a professorship at Leyden, where the celebrated Boerhaave was among his pupils. He died at Edinburgh in 1713. The specific name is in honour of the well-known firm of Messrs. Jackson and Sons, of Kingston-on-Thames. *Pitcairnia* belongs to the Natural Order of *Bromelworts* (Bromeliaceæ), of which the Pine-apple plant is the chief representative in British gardens. They are all six-stamened, and, therefore, in the sixth class of the Linnæan system, 6-*Hexandria* 1-*Monogynia*, and are asso-

ciated with such plants as *Billbergias*, *Tillandsias*, and *Æchmeas*, plants of no known use, if we except *Tillandsia usneoides*, or the Pastle of South America, which hangs down in long strings from the branches of trees; is elastic after drying, and used for stuffing birds, pillows, and other articles, and, more recently, by plant collectors for packing purposes. They are all natives of the New World, but being very tenacious of life, some of them have been distributed to Africa and to the East Indies, and other tropical parts. They grow in dense profusion in the hot parts of the New World, and often leading a sort of epiphitical life, climbing up huge stems, which they fringe with a perpetual verdure, feeding on the hot damp air and exhalations from decaying vegetables around; or grasping with their eager roots such dead vegetable matter as may chance to be within their reach. Their leaves form a deep cavity in the centre by their close growth at the bottom, and in the rainy season the cavity is filled with water, with which the plant supplies itself during the periodical droughts. The eager collector of orchids climbs up a tree thus clothed with Pitcairnias and other Bromelworts, in search of his Epidendrums, and in his hurry upsets one after another of these water pitchers, and is instantly deluged from a source he cannot for a moment divine. On account of this provident habit of sustaining themselves with food and moisture, and also for the gaiety and fragrance of their blossoms, they are great favourites in South American gardens, where they may be seen hanging about in all directions, from trees, fences, balustrades, and balconies,

where they flower in profusion, without any earth or care, filling the air with their delicious fragrance.

The whole race of Bromelworts would flourish in our stoves, fastened to logs of wood, like Mr. Appleby's orchids, or nailed to damp walls under the shade of other things; also planted in pieces of beetroot, which, if the leaf end hung downwards, would soon put forth a new crop of leaves that would nestle a Bromelwort in their attempt to secure a more natural position. Such are the Pitcairnias and their allies, which, under a liberal system, would soon multiply themselves by suckers and seeds to an inconvenient extent.

Pitcairnia Jacksoni was imported accidentally by Mr. Jackson, among tufts of orchids, from Guatimala. It is a stove plant; *roots* fibrous, and producing many suckers; *leaves* full a foot long, pointed sword-shape, spined-saw-toothed on the upper part only, upper side dark green and smooth, under side white-powdered. *Flower stem*, leafy at the bottom, powdered, and bearing scarlet flowers, of which the powdered flower-stalks stand out slightly raised, with bractes; calyx powdered, three-cleft, scarlet, with yellow edges; corolla three inches long, and scarlet; stamens length of petals, and the pistil rather longer. Found native in dry places; increased by suckers; and thrives in a mixture of light loam and peat.

PALE-FLOWERED CALOCHORTUS (*Calochortus pallidus*).—*Annales de Gand.*, t. 225.—This is a very beautiful genus of bulbous plants, belonging to the *Lilyworts* (Liliaceæ), and nearly related to the *Tulip* and the *Fritillary*, but easily distinguished from both by having the sepaline petals, or the three which represent the calyx in this order, of a different form, colour, and texture, from the true petals. They are almost exclusively found wild in the warm vallies in California, or in their neighbourhood; but neither Pursh, Douglas, or Hartweg, who have seen them growing, have related the exact conditions of climate under which they are found, nor even the precise localities where the best species inhabit. From Hartweg we learn that those he met with in the upper parts of the Sacramento Valley, chiefly *luteus* and *pallidus* (?), begin to grow at the end of October, when the rains commence; and that they flower in May, after the rains have ceased sometime, and when the annual clothing of the valley is withered up by a scorching sun. From this scanty information we can perceive the reason why all, or almost all, the large importations of them by the Horticultural Society, and which they distributed among the Fellows nearly twenty years ago, have been lost to the country. We ourselves flowered *macrocarpa*, *splendens*, and *venusta*, three of the most handsome flowering bulbs which we ever had the good fortune to flower in one year, but we never saw any more of them. Indeed, we went under the impression for some years that they were altogether extinct in our gardens, until we were informed lately, when making inquiries for the subject of this biography, that Mr. Groom, of Clapham Rise, the great bulb grower, has succeeded in saving them, and that he stands alone as a successful cultivator of the *Calochorti;* and if Mr. Groom should see this page, we make little doubt, from his well-known liberality, he will benefit our readers by sending a short account of their treatment to THE COTTAGE GARDENER. The name *Calochortus* was given, nearly forty years ago, by Frederick Pursh, a Prussian botanist, who travelled extensively in North America in search of botanical novelties, and who wrote a work in two volumes on the new plants he discovered in the north and north western parts of the New World—a work which was published in London in 1814 under the title *Flora Americanæ Septentrionalis*. The word *Calochortus* is derived from *kalos*, beautiful, and *chortus*, grass; the young leaves of these handsome bulbs issuing forth like blades of grass on the return of the periodical rains late in the autumn; and with the allied *Cyclobothra*, *Brodiæa*, *Tritelja*, and such like bulbs, form the only herbage when they are in blossom; as no plants except trees, shrubs, and bulbous rooted ones, can withstand the May sun of California. Hence it is that large tracts of the country are clothed with plants having only an annual duration. Bulbs from such regions are exceedingly impatient of wet when they are not growing; but we shall not anticipate Mr. Groom in respect to their true culture.

When David Douglas went out on his second and last mission from the Horticultural Society to the north-west coast of America, and finding it impracticable and unsafe to ascend the great Columbia river, according to his instructions, he pushed on his way to California, which he reached this time twenty years back, and he spent the next two years exploring the gold country, whence he sent those *Calochorti* which were distributed by the society. Still we are ignorant of the exact localities where he met with them, and his journals and papers, through some unworthy feeling on the part of the officers of the society, as it is understood, have never been published, but to this day remain in the archives of the society. This is much to be regretted now that a regular communication has been established with California. Were we in possession of Douglas's journals, they would surely give a clue to the localities where the writer met with such beautiful bulbs. If their native places of growth have been really pointed out by Mr. Douglas, it was a very serious omission on the part of the council of the Horticultural Society, not to have made Hartweg aware of them when he was sent lately to California, and where he spent a long time without having met with many, or even with the best, of the old *Calochorti*. But, as in the case of Douglas, the officers of the society chose to differ with Mr. Hartweg about the scantiness of his journals and other things; so that, before he had time to collect his ideas, and record them, after his

arrival in England, he was dismissed without ceremony, and the cream of his labours, we make no doubt, will be for the advancement of foreign gardens. He is now one of the court gardeners to the Emperor of Austria, at whose expense he was first sent amongst us.

Calochortus pallidus is a native of Mexico. It is bulbous *rooted*, and grassy *leaved*, like the rest of the genus. *Flowers* in loose umbels; petals reversed egg-shape, pale brown, hairy in the middle, with a very dark triangular spot at the base.—B. J.

THE FRUIT-GARDEN.

EARLY CUCUMBERS.—So numerous are the demands with the rising year, which may be made on practical men who endeavour to cater for the public mind in the gardening world, that the purveyor of such materials feels sadly puzzled in exercising the duty of selection. We really did want to complete some papers about fruit-gardening, or rather the arrangement of fruit-trees in newly-made gardens, but the lengthening days remind us that we shall one day be too hot, and that a cooling salad—the cucumber not being absent without special permission—will be a most welcome appendage of the dinner-table, whether that of the gastronomist or the cottager. As to the former, we would strongly urge the expediency of having a small cucumber-house, as advised last year. Mr. Rivers has shown that an artificial climate may be formed in an economical manner, by means hitherto unthought of; and, indeed, the five-pound greenhouse—details of which have been afforded in a previous portion of this work—will furnish capital hints of the mode of procedure.

Our readers will here remember, that it is not the most expensive plans that are most successful; and that to secure economical ones, the whole of the work must not be thrown on the mechanic. Nearly one-half may be carried out by a smart labourer, provided the principal himself is in the way, and can direct well a host of subordinate matters. It need scarcely be added, that independently of the cost of material, expensive or ill-directed labour, fearfully enhances the cost of production in everything. So we may conclude that the old adage is as fresh as ever in its application to labour matters—

> "He that by the plough would thrive,
> Himself must either hold or drive."

We will now proceed to discuss the ordinary dung-bed cucumber culture, for, doubtless, many of our readers will at once think, that if the dung at their stable-door *must ferment*, the heat evolved ought by all means to be made available to some useful purpose; and really it does look a very common sense sort of affair.

Preparation of Dung.—What is termed by practical men "sweetening" fermenting materials, is a process not confined to the cucumber alone; many cases will occur to those who have the ordinary frames which require fermenting material; and as the process is the same in all cases, one account will suffice.

We will commence with the dung fresh at the stable-door; the first thing is to throw it into a close body to "sweat." Those amateurs who have plenty, and to spare, will do well to shake it over loosely, and reject a portion of the mere droppings; for these take the most purifying, and, moreover, engender an over-powerful, and sometimes unmanageable heat, which in unpractised hands is capable of much mischief. Such droppings are admirably adapted for mushroom culture, and need only be strewed over the floor of an open shed for a few weeks (until three parts dry), in order to form a capital bed with little farther preparation. The main bulk of the material thus thrown together, will in a week or so become exceedingly hot, and must then be turned completely inside out; and in so doing, every lock or patch which adheres together must be divided. Water will now be requisite, and must be regularly applied as the work proceeds, rendering every portion equally moist. After the mass has lain for about four days longer, it is well to administer a liberal amount of water on the top; this will wash out at the bottom of the heap, much of its gross impurities. In a few more days it must be again turned inside out, using water if dry in any portion; and after laying nearly a week it should be almost fit for use; but it is well to give it even another turn, if labour is at hand. If any tree leaves, strawy materials, &c., or any simple vegetable matter is to be added to the mass, it may be added at the last turning but one.

These things accomplished, the heap ought to be "sweet," and such may be readily ascertained even by unpractised persons, for a handful drawn from the very interior, and applied to the nostrils, will not only be devoid of impure smell, but actually possess a somewhat agreeable scent, similar to the smell of mushrooms.

Beds.—All things will now be in readiness for building the bed, and one necessary point is to select a spot perfectly dry beneath, or rendered so. It must, moreover, be thoroughly exposed to a whole day's sun, but with this, the more it is sheltered sideways the better, as starving winds, by operating too suddenly in lowering the temperature, cause a great waste of material as well as labour. Some portable screens, therefore, are useful things for early work—of which, more presently.

The ground plan of the bed, or ground surface, should be nearly level; a good builder, however, will be able to rear a substantial bed on an incline, and such is not a bad plan, so forming the slope as to have the front or south side several inches below the back; the front being *with* the ground level, the back raised above it. By such means there will be as great a depth of dung at front as back, which is not the case when the base is level; for then, unluckily, through the incline necessary for the surface of the glass, the dung at back is generally much deeper than the front, at which latter point most heat is wanted. We merely mention this as a subordinate affair, and may observe, that good gardeners not unfrequently use a portion of weaker material at the back, such as littery stuff, containing little power as to heat. It is well, also, to fill most of the interior of the bed, after building it half a yard in height, with any half-decayed materials, such as half worn linings, fresh leaves, &c.; this will in general secure it from the danger of burning, whilst it will also add to the permanency of the bed, for the cucumber roots will descend, and thus secure an indefinite amount of food during the hot weather of summer. We have known beds thus circumstanced, continue bearing well until the following autumn, producing up to that period an almost incredible amount of cucumbers.

At this period, a bed should be at least four feet high at the back; if five feet, all the better; and as soon as built, let some littery manure be placed round the sides in order to prevent the wind searching it. As soon as the heat is well up, or in about four days from the building of it, the whole bed should have a thorough watering. It is now well to close it until the heat is well up again, when a second and lighter watering may be applied; and now it will be ready for the hills of soil any time.

It will appear tedious, we fear, to some of our readers, to dwell so much on the preparatory steps of dung sweetening, &c., especially having formerly handled the subject; but it must be remembered, that in early dung-beds, *everything depends on the sweetness of the material;* as air cannot be given with that liberality with which it may at a more advanced season.

In making the hills of soil for the plants, we generally make a hollow in the centre of each light, half the depth of the bed. In the bottom of this we place nearly a

barrowful of brickbats, on this some half-rotten dung, and finally a flat square of turf, on which the hillock is placed. It is almost impossible for the roots of the plants to "scorch" with this precaution. The soil at this early season may be one-half good turfy loam, six months old at least, and the other half-rotten manure, old vegetable soil, and sandy heath soil, well blended.

In placing the hillocks, most old practitioners keep them at first in a globular form in the centre of each light; this enables the cultivator to apply water occasionally, in case of burning, without wetting the soil.

We have thus conducted the novice in cucumber growing up to the period of ridging out, as it is termed, and we may now speak of their subsequent treatment during the early stages.

Culture.—This may be said mainly to comprise a due attention to ventilation, sprinkling, and constant care over the linings. If the bed is established as it ought to be, the principal of the heat will have to be furnished by the latter; for if the body of the bed is in a slight fermentable state, there will always be *bottom-heat enough;* for such should not be permitted to rise above 90° *by any means*, nor to fall below 75°. Protection to *the linings* was named at the beginning of this paper: we proceed to explain. It is well known that a good deal of labour is involved in the culture of very early Cucumbers by the ordinary dung frame; and not only this, but the loss of much manure. Now, by having some kind of screen to ward off the wind, linings will both last double the time and also be much less liable to injurious fluctuations. A great economy of labour will also be achieved, and, lastly, success rendered more certain.

Some persons use spruce boughs, or other brushwood; and very good they are, but unsystematic, and, moreover, not always within reach of our suburban gardeners. To such we recommend the use of wooden frames, covered with tarpaulin, sail cloth, or anything impervious to wet. The frame may be a mere skeleton, like, in fact, an old picture-frame, and bound across, for strength, at each angle; and the cloth, mats, or other material stretched tight and nailed down all round. Made in about six-feet lengths, by about four feet in depth, they can be readily shifted according to need, by even lady amateurs. Such adjuncts are greater economisers than many would imagine: beds made of properly sweetened fermenting materials, and the linings kept moist and protected by screens, will almost work themselves, ventilation being of course attended to. Nevertheless, the linings should be turned over about once in a fortnight during February and March, choosing mild weather for the operation, never turning the whole at once, but back and front alternately.

As to *ventilation*, a good surface heat being insured, we say, give air night and day, less or more, so long as 70° can be secured by day, and from 60° to 65° by night; suffering, however, a rise at all times in a just proportion to the amount of light. Let the maximum pitch be attained generally from about three to five P.M., during which period the frames may be closed. After this, again, give a little air for the night, cautiously, and slightly sprinkle round the sides of the frame.

R. ERRINGTON.

THE FLOWER-GARDEN.

PARTICULAR WALKS.—I have had a plan in my head for the last five years for making a walk across a swamp where one could not step a foot without sinking down knee-deep, if not much deeper—probably the most difficult kind of bottom that is to be met with anywhere for making a walk or road on. Yet there is no great "engineering difficulties" about it, as the railroad writers used to say, and railroads have been carried over such places, but, as I conceive, on a wrong principle altogether, and at ten times the expense they might have been done, and done well too.

In this neighbourhood—between Stowmarket and Bury St. Edmunds—the line of railroad had to pass over a piece of ground of this very description; and report said at the time, that they were sinking money in this swamp deeper than it would be possible for the Chancellor of the Exchequer himself, with all his hostever to get it up again; and we all of us know that *they* can get out money where few people would think of trying for it. Very lately I explained my plan to a good engineer, who, after screwing down his eyebrows five or six times, declared that I should never sink into a swamp if I could but get money enough to walk over it in my own way, and that thousands might have been saved by the plan on works which he mentioned.

The usual mode of securing a firm bottom for a roadway in a place of this description is by first putting down a quantity of fagot wood, or—as in the case of some parts of the railway over Chat Moss, between Liverpool and Manchester—a platform of timber and hurdles of sufficient depth and strength to bear up the weight of the road, and prevent the boggy ground from bulging up on either side: so far, so good. Without a floating bottom the thing is impracticable—the error has been that more weight was put over the floating materials than they could bear without sinking into the marsh or bog, without at the same time making the stratum itself more or less of a floating nature also. Concrete would have done this effectually, if put on in separate thin layers, as I described when explaining about the road. Now the way I propose is this, and only for a walk sufficiently strong to carry a barrowful of something as heavy as a stout navigator could wheel across. Instead of using fagots for a float I would prefer loose branches, and of them I would lay down two, three, or four layers, according to the softness of the surface; over this I would place a couple of inches of long straw, and over the straw a layer of good concrete three inches thick. The weight of this would not sink the wood and straw even in water, supposing the width to be above six feet. In extending the work, I would carry the wood, straw, and concrete over this layer by a system of planks, in the usual way of wheeling with barrows; and by the time the first layer of concrete was finished across the marsh the first end of it would be set, and firm enough for a second layer of the concrete about the same thickness, or, if not dry, time must be allowed for it to set, and then it would be in effect as if a thick layer of planks had been used instead of it—or say a raft. By the time the second layer was set we should have six inches of stuff as firm as if it were in one piece of wood, slate, or stone, which would then float on a muddy surface without wood or straw. After that, other layers would be added in succession, according to the weight the road or pathway would have to carry, up to the weight of a "goods train," and still the marshy bed would be not disturbed more than with the first layer of three inches. Such is my firm belief, at any rate; and it is confidently backed by the more scientific views of the engineer.

Few people, except builders, have any idea of the strength of well-made concrete, and none of them have yet any experience of the wear that is in small stones when thus put together; but, from the concurrent testimony of writers and keen observers, I am quite sure that a road or walk thus constructed would last longer on a marsh or yielding bed than if it were laid on a solid rock.

The next most difficult situation for a walk is a soft spongy clay on a dead level, within arm's length of high spring-tide mark, or inundations by frequent floods. Here, too, the same principle that is involved in the

instance of the marsh must be the ruling guide. The surface of the clay must not be disturbed in the least degree; no straw to keep back the particles need be used; and smaller branches will suffice to set across the pathway. The use of the brushwood is, of course, to prevent the bottom of the walk from mixing or sinking into the clay, the surface of which and the bottom surface of the concrete ought to form two distinct faces or layers like two panes of glass, the one over the other.

The great blunder in making and the enormous cost of repairing cross-country roads will thus be got rid of altogether. A parish surveyor, if his head has been put on the right way, will go to work with a new road like a philosopher until he comes to the laying on of the "materials,"—a ditch and bank on either side are made as good, if in England, as they could be made anywhere, if not much better. In Scotland these ditches and banks next to parish or other roads are all but unknown: the rents are too high in Scotland to allow them to waste the land that way. While the ditch and bank are in progress, the bottom of the road, in recent times, gets a good inclination; and if wet and spongy, it is drained herring-bone fashion—that is, right and left to either ditch from the back-bone or centre of the road; or, if there is but one ditch, a culvert or large pipe-drain is carried across occasionally under the bed of the road. All this, as far as it goes, is as it should be; but no sooner do the materials for constructing the road with make their appearance than surveyor, men, horses and all are out at sea—deep as "ankle deep,"—but no matter: it is winter time, the men are employed, and the work is finished before the horses can get on the land; and without grumbling at rates and other things they say of us as a nation we could not exist for a twelvemonth. The winter is the worst part of the whole year for making or mending roads or walks, except, perhaps, preparing the bottom, all necessary drains, raising or lowering the surface on either side—in short, all the requisite preparations except putting on the materials; and from March to the middle of May is the best time for making and laying the concrete, unless the weather happens to be wet, when it will be almost impossible to carry on the work without disturbing the bed for the road or walk.

The next difficult kind of bed to form a walk on with precaution is stiff clay, without being wet, or, if a little moist, easy to drain to the sides. Here the brush-wood may be dispensed with; and if chalk is to be had reasonably cheap, a layer, two inches thick, to keep the concrete from fixing in the clay, is the best material; but in the absence of chalk, the walk should be made a couple of inches thicker than the standard depth of four inches, to guard against the possibility of the frost swelling the clay, which might crack the concrete. Any kind of soil that is retentive should first be formed on the slope both ways from the centre, before the concrete is laid on, and if there are any doubts about wet reaching it, small cross drains should be laid at short intervals from the centre to the sides at right angles with the line of the walk, to communicate with the drains, which may be necessary for surface draining both sides of the road, and into which all the surface water from the walk must be led in the usual way if the ground is flat. The neatest way of managing the escape of the surface water that I have seen is that in the Royal Gardens at Kew; but the taste of the proprietor, as Mr. Kemp very justly remarks, should be allowed to sway this part of the details. In the flower-gardens and pleasure-grounds here, where we count the walks by the mile, there is not a single drain necessary anywhere. Even on the flat surface of the level terraces we do not require them. At the present moment, and for the last two months, we have hundreds of yards of new walks, from nine to twelve feet wide, in progress, besides two new handsome terraces, and one of the old terraces, to be remodelled, and up to this date I have seen no reason for a drain of any description. The whole are to be finished just as I have been describing in these letters, and we are so confident of our handiwork, that we should feel no uneasiness if we were told to-morrow that a mill-stream were to be let loose down the surface of any one of our sloping walks three days after it was finished; yet the greatest depth of gravel that will be laid on any of them will not be quite half an inch. The new road up the hill, which I have so often mentioned as proof positive of the strength and durability—or *unwearability*, if there is such a word,—has had another severe trial during the late damp muggy weather: a very large quantity of the Caen stone has been hauled over it in great blocks, averaging about five tons a-piece, by six horses, and on narrow wheels; and now that this hauling is finished, the half inch of gravel laid on last May to form a smooth surface for the wheels, scraped off the road, is now just as good and as firm as it was when the first load went over it. Another half inch of fine gravel put on before the surface gets quite dry, and rolled three or four times, will make it as smooth and fine as the best garden-walk in England; and its whole thickness is not a fraction more than five inches, and all the new walks will be equally strong for what is intended for their traffic; but their thickness will not exceed three inches in any part, and on the average of the whole surface, less than half an inch of gravel will be all that will be used. The terraces I shall form a little different from the walks; but I shall say nothing about them till they are finished.

I have said that the body of the walks should be made four inches wider than the walk is intended to be. There are many advantages secured by this plan. On level ground the rain-water collects along the sides in ordinary walks, sinks down there, and after a while feeds the sides of the turf so much, that the grass is sure to appear more coarse than elsewhere; a bed is also prepared for a crop of weeds, and the more you disturb it to get rid of them, the better the bed is prepared for the next crop. When the edging-shears cuts the grass, you will find that the roots have disputed for the bed with the weeds, and instead of being able to sweep up the grass as easily as off an oil-cloth, you will be in a mess for nobody knows how long, striving to divide your loose gravel from the grass and weeds, and before all is over the chances are, that the temper will get loose and mixed like the mass. A couple of inches of solid stuff under the turf will do away with that branch of gardening; weeds cannot grow upon it, nor will roots from the grass edge strike into it. The grass is as short along the edges of the walk as on any part of the lawn, and unless the turf was cut very badly in the first instance, the depth of the sides will be uniform through, and need not be quite half an inch. Last of all, the extra width of concrete prevents the rain-water getting to the bottom of the walk, which would be the worst part of the whole story. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CHOROZEMA.—To those who are experiencing the first symptoms of enthusiasm for the possession and cultivation of beautiful plants, few things are more bewildering than the names by which they are known, more especially if such persons have not previously received the rudiments of a classical education. Even with this advantage the difficulty is not at once or easily removed, even so far as the meaning is concerned; for after bothering themselves, for instance, to find the meaning

of a generic name, it may very likely turn out that it has no peculiar meaning at all, but is merely commemorative of some individual who has rendered good service to this branch of natural history. Even when the meaning is perceived, as in the present instance of the *Chorozema*, which is compounded of the words *cheros*, a dance, and *zema*, a drink, still, without farther intelligence of the matter, we might puzzle ourselves for years with the beautiful pea-shaped blossoms, the compact habit of most of the species, the various formed leaves—some resembling a heath, others not unlike, except in size, our prickly holly—without being able to discover anything to remind us either of *dancing* or *drinking*. Could we, however, at once bring before our mind's eye the French botanist Labillardierre strolling along the south-west coast of New Holland, fatigued and parched with thirst, trying every pool of water that came in his way, but finding them undrinkable from the salt they held in solution,—coming at length upon a bubbling fountain of delicious water, should we then wonder that the vivacious botanist would dance as he quaffed the refreshing liquid? or could we question the propriety of his christening as *Chorozema* the beautiful new plant found growing upon the banks of the reservoir, as alike expressive of his feelings and commemorative of the event? Even this circumstance, trifling though it may seem to some, presents us with the solution of the chief difficulty respecting the cultivation of the various species, and especially of those that are somewhat tender and shy in their habits. Stagnant moisture—either from insufficient drainage or a want of porousness in the soil, or the soil allowed to become dry while the pot stands upon a dry shelf—are alike and equally ruinous.

Our collection of this group is at present rather limited; for, like many more, to sustain the pleasures arising from variety, old favourites must be set aside, in order that others may charm for a time by their novelty, if not by their superiority. Old beautiful plants, thus discarded from limited collections, when introduced again have even more pleasing associations in some respects than new untried species. The Chorozemas as a whole are all so good, that where there is room there is not one but deserves cultivation. Like the *Epacris* and *Correa*, to both of which attention has lately been directed, they are natives of New Holland, and its near neighbour Van Dieman's Land. They appropriately follow both of these groups, inasmuch as if *they* delight us in winter, the *Chorozemas* commence blooming in March, and in some of the species continue to do so until the commencement of autumn. The flowers are produced in larger or lesser racemes, proceeding chiefly from the axils of the leaves near the points of the shoots. This points out a peculiarity of culture to be attended to—namely, the securing not of a few strong shoots, but by timely stopping and tying out a great number of shorter and yet stubby and well ripened ones.

The following are among the best species, though there are others very good. As most of them produce seed freely, we may expect many superior varieties when once the hybridist sets earnestly to work, such as plants with the large flowers of *varium* and the compact habit of *triangularis* and *ovata*. For greater usefulness, we shall arrange the limited list into three groups.

1st. *C. Henchmanii*, stems upright; leaves needle-shaped, like a heath; flowers scarlet, with a yellow mark. Introduced 1825.

C. angustifolia, branches slender, inclined to be a climber; small linear leaves; flowers yellow and crimson. 1830.

C. Dicksonii, stems compact; leaves narrow; flowers red and yellow. 1836.

These grow, upon an average, from two to four feet in height.

2nd. *C. cordata*, stems slender; leaves heart-shaped, spiny at the edges; flowers red.

C. ovata, stems slender; leaves ovate; flowers scarlet 1830.

C. illicifolia, stems slender; leaves oblong, sinuated, and spiny; flowers yellow and red. 1803.

C. varia, stems stronger growing; leaves roundish, sometimes plain, sometimes notched and jagged, hence its name; flowers yellow and red, and large. 1830.

These generally grow from two to four feet in height. I have had a large bush of *varia* from five to six feet, and diameter in proportion. This division has beautiful flowers, and, upon the whole, is easiest managed.

3rd. *C. nana*, stems and leaves compact and small; flowers yellow and red. 1803.

C. spartioides, stem and leaves spartium-like; flowers, yellow and brown.

C. triangularis, stem slender; leaves long, sinuated, and with prickles on the edges; flowers scarlet and purple. 1830.

C. flava, stems slender; leaves sinuated, and toothed; flowers creamy yellow. 1848. This last I have not seen, but I have been informed it resembles the others in this group; all of which are naturally of a slender dwarf habit, varying from one foot to eighteen inches in height; though, of course, they will get taller when well grown, and kept for a long period.

The difference in the treatment of these divisions consists chiefly in the *soil* or compost to be used. In all it should be of an open porous character, and yet not so rough, but it will go pretty closely together. The *first* division principally require roughish peat. I have found the following answer well:—Rough peat, from which the very finest was removed, and the largest pieces ranging from the size of small marbles to that of chestnuts and pigeon's-eggs, according to the size of the shift given; such fibry peat, four parts; fibry sweet loam, one part; broken charcoal, broken pots, small clean stones, such as is procured from the washing of road-drift, and silver sand, from one to two parts. This would make a nice open light compost. The surface must be covered with finer material to prevent the air entering too freely. It is necessary that the charcoal used should be clean, good, and from hard wood. Any rubbish charred will do for common purposes; but for plants a little shy, something better than charrings from the rubbish-heap must be obtained. For the *second* division, with an equal amount of open porous matter, equal parts of turfy loam and turfy peat may be adopted, or the loam may nearly equal the peat. As a general principle, it will be found that the larger and plainer the leaves, the stronger will be the growth, and the more nearly may the loam equal the peat in quantity. For the *third* and dwarfest division, three parts of peat to one of loam, with enough of sand, charcoal, &c., to render it open, will answer well. Having said so much upon soil, I shall now merely specify a few points of management.

Choosing plants in a Nursery.—Let them be dwarf, stubby, and young, with the roots just getting to the side of the pot. A stunted, pot-bound plant, however large, will never do any good. A struck cutting is to be preferred. If the family is new to you, it is best to get the plants in the spring, as the growing season is before you.

Pruning.—With the exception of stopping very vigorous shoots, which should be done at any time, this should be principally done when the plants are done flowering. The plants should be kept a little closer and warmer afterwards, to encourage fresh growth, when this has taken place.

Potting should be attended to when necessary, paying particular attention to drainage. Very large shifts can scarcely ever be given with safety to large established plants, though it may be safely adopted with vigorous

; ones when potted early in the season. For those .o not thoroughly understand the system, they will ɔd best by the successive mode, never giving a shift at a time. After potting, the plants must be close until fresh growth of roots has taken place, hen be exposed gradually to the open atmosphere, he wood may be fully matured.

ttering.—I have already hinted that the plants never be soaked, like an acquatic, nor dried as a lent may be at times. The first is prevented by tion to drainage and open porous compost; the d is guarded against, both in summer and winter, ing double pots. The watering-pot, especially for .rst division, nevertheless, must be used with judg- , and the water, if possible, should be soft and pure, n winter at least 5° warmer than the atmosphere. ı making their wood, they may obtain a few times k-coloured infusion from cow-dung. The other divi- , and especially the second, will rejoice in such a on frequently.

ringing.—This may be practised freely when the s are growing; and after potting a frequent dusting ɔe better than watering. Do it, however, so care- and gently that their will be no danger of *mudding* rface soil in the pot.

mperature and Situation.—In winter the heat should n be below 45°, and air given in abundance, when utside temperature is a little above 40°. During r they should have a place well exposed to light. ı in bloom in April or May they should either be hady place or in double pots. In summer the best is a cold turf-pit; but if that is not to be had, they d stand in a shady place in July and August; or if ɔed to the sun, there must be double pots, or the ɔ pot protected by mulching in such a way as not .pede drainage, or prevent the air circulating round nd in the later months, before being housed, they be exposed fully to light and air, only they must be ed from heavy rains and violent winds.

opagation.—This is easiest effected by seeds, which ɔften produced freely, and though many would en the plant, yet a pod or two might be left for that ɔse. The seed may be sown when ripe, but in all atish flowering ones, it is better to save them over inter; soak them for a day in water about 130°, ɔow in the spring in a gentle hotbed. Pot off when · inches in height, and stop to make bushy.

Cuttings.—Nice firm half ripened shoots about two ɔs in length strike most readily. These are most r secured after pruning, and where fresh growth ɔeen made, and is advancing to maturity; but then en happens that the cuttings, though treated with uch care, and in a manner similar to that which ther day was recommended for the *Corræa*, are not gh advanced to be fit for moving before winter. To dy this inconvenience, and where only a few are ed, these may be secured generally in spring, by ng for, and detaching close to the main stem some stubby side shoots.

seases and Insects. — *Mildew* is apt to assail the l leaved kinds, such as Henchmanii, and the red r relishes the roughest leaved species that exists. ıur is the great remedy for both. For the first ı it appears, dust the parts all over, but keep it the soil in the pot. Set the plant in a shady for a couple of days, and then place it on its broad and syringe it all round until all the sulphur is ved. Inure it gradually to the light, and if not ar gone, all will be well. The same method may dopted for the spider; but a cleaner, and even effectual mode is to introduce the plant where you ɔut a little sulphur on a hot-water plate.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

(*Continued from* p. 245.)

Stove Climbers—Passiflora (The Passion flower).—This is a well known family of plants, having much interest attached to it from the amiable, though superstitious, fable that on its first discovery in South America was attached to it by the Romish missionaries. They declared that the part of the flower resembling a pillar, and which bears the three stigmas, represented the cross on which our blessed Saviour suffered; the five anthers, the hammer and the nails with which he was fastened to the cross; and the rays were said to figure the crown of thorns. The petals, ten in number, were said to represent the ten Apostles; but as there were twelve, to get over that discrepancy, it was alleged that one denied and one betrayed his Master, and so they had no place in the flower; and as our Saviour was three days in his tomb, this flower commemorates that circumstance by opening and shutting within three days. On such a foundation this genus was named the Passion flower. It is a large genus, and we shall follow our usual method of selecting a few of the most strong and attractive species worthy of being recommended for culture.

P. actinia (Sea-anemone-flowered P.); Organ Mountains.—A very handsome, large flowered species, discovered in 1842 by Mr. Lobb, the successful collector of Messrs. Veitch, of the Exeter Nursery, in whose establishment it flowered the same year. It is not unlike *P. quadrangularis*. It is climbing; with leaves large, entire, twisted, and bordered; dark green on the upper side, and milky green underneath; the leaf-stalk has four glands or fleshy protuberances on it—two near the middle pretty close together, one near the base of the leaf-stem, and one close to the leaf. The flowers are large and solitary, springing from the axils of the leaves. There is a three-leaved involucre under the flowers, and each leaf is heart-shaped; the rays or crown of the flower are long and twisted at the ends; the prevailing colours are white and purple in bars across each filament of the crown. It is a handsome fragrant species, and from its affinity to the fruit-bearing *granadilla*, will no doubt produce fruit if properly impregnated. 16s. 6d.

P. amabilis (Pleasing P.).—Garden hybrid. This is a seedling variety, raised six years ago, between *P. princeps* and *P. alata*, by Mr. Schlachter, a gardener residing near Lisle, in France. The leaves, like those of the latter species, are entire. The petals on the upper side are of the most brilliant crimson; the rays are white, stained with crimson towards the end, a contrast of colour that renders this charming variety well worthy of cultivation. 10s. 6d.

P. alata (Winged-stalked P.); West Indies.—This species has also a close affinity to *P. quadrangularis*, but is easily distinguished by its winged stem and smaller flowers. It is also a less rampant grower, and therefore more fit for small stoves. 3s. 6d.

P. Buonapartea and P. phœnicea are also much like the *P. alata*, but the former has the flowers more in the shape of a cup, and the colours are much more vivid; the latter is chiefly distinguished by the colours being more inclined to purple. We can only consider them as seedling varieties. 3s. 6d. each.

P. coccinea (Scarlet P.); Guiana.—A very handsome distinct species, with entire leaves, and involucrated leaves under the flowers. The colour is a brilliant scarlet. Very scarce, if at all in cultivation.

P. edulis (Eatable P.); West Indies.—The flowers are not showy, being small, and of a dull white; but they are succeeded without any trouble by plenty of fruit, about the size of a hen's egg, which has an agreeable taste, and is of a beautiful purple colour; th

rendering the plant useful as well as ornamental. The leaves are three-lobed. The flowers are involucrated, and the involucres are three-leaved. 3s. 6d.

P. LAURIFOLIA (Laurel-leaved P.); West Indies.—The flowers of this species are green and purple, and are rather pretty, though small. The fruit is eatable, about the size of *P. edulis*, and of a fine lemon colour. It is of a much slower growth than the preceding species, being of a more shrubby habit. Worth cultivating on account of its fine fruit. 3s. 6d.

P. KERMISINA (Crimson P.); S. America.—A beautiful fine-leaved, weak-growing species, suitable for pot-culture and training round a balloon-shaped wire trellis. The flowers are of a medium size, and the petals on the upper side are of a bright reddish crimson. A very desirable species. 2s. 6d.

P. ONYCHINA (Deep blue P.); S. America.—This is also a weak-growing, small-leaved species, remarkable for its pretty flowers, which are entirely of a pleasing blue colour. We saw it beautifully in bloom last summer in the Royal Gardens at Kew. 3s. 6d.

P. QUADRANGULARIS (Square-stalked P.); Jamaica.—This is the most noble of all the Passion flowers. It is called in the West Indies the Granadilla. The leaves are entire, and larger than those of the common laurel. The flowers are also very large, when fully expanded measuring five inches across; their colours are green, blue, and red, beautifully varied; the fragrance is very powerful, but not unpleasant; and the flowers are succeeded by large fruit, which hang down from the roof like as many melons. Their pulp is of an agreeable acid sweetness. It does not set its fruit readily in our stoves without help. The method of impregnating the germ of the fruit requires considerable dexterity. The whole of the calyx, corolla, and crown must be cut off with a sharp pair of pointed scissors, and this must be done without injuring the flower-stem. When all these are cut away, there only remains the essential parts of the flower: the stamens, five in number, and the three stigmas. Then cut off one or more of the stamens bearing the anthers, and do this without shaking the dust or pollen out of the anthers; then gently touch each stigma with the anther, covering them with the fertilizing powder. Take the opportunity of performing this operation early in the morning at the very time when the anthers are observed to be bursting. In a very few days the little germ under the flower will be seen to swell, which shows that the business has been properly performed. The swelling will take place sometimes without cutting away the ornamental parts of the flower; but it is not so safe or so certain, because those parts are very fleshy, and when they decay are apt to cause the whole to decay, and the fruit to drop off immaturely. 3s. 6d.

This plant is used in the West Indies to form arbours, for which its rapid growth and large leaves admirably adapt it. We ought to have mentioned that when the fruit is ripe it is soft to the touch, and of a pale yellowish green colour.

P. RACEMOSA *var.* PRINCEPS (The Princely racemed P.); Brazil.—As the *P. quadrangularis* is the most noble, this is the most handsome of the genus. The leaves are three-lobed, smooth, fleshy, and of a bright green. The flowers are of a fine red, approaching to a scarlet, produced in racemes at the end of the shoots, and are of the same beautiful colour in the bud before they open. A finer sight in floriculture cannot be conceived than a rafter, or festooned chain, from which these splendid racemes of scarlet Passion flowers are hanging down profusely. We remember, some ten or fifteen years ago, witnessing a splendid specimen of this species in a circular conservatory at that noble place, Alton Towers, the seat of the Earl of Shrewsbury. It covered the roof entirely, and the racemes of flowers hung down in the greatest abundance. Even on a much smaller scale it is very handsome. And again, the length of ing season is not its least recommendation. from March to November. The leaves make garnish to dishes of fruit; for if, when gat are rubbed with a piece of leather pretty appear of the finest polish, like green marb account of their substance they do not flag the generality of leaves used for that purpo one that has a stove ought to grow this charm It will even live and thrive well in a green servatory, though in such a house, owing to heat in spring and autumn, the blooming sea considerably shortened. 3s. 6d.

There is no doubt but Passion flowers will Some little has already been done in this way great difficulty is to find room to grow any co number of hybrids on trial till they flower. houses as the large ones at Kew and Chatswor space enough for such a purpose; and if t Palace in Hyde Park should be given by our g for the purposes of floriculture, there would enough for such experiments, which there can doubt would be attended with the happiest res

Culture: Soil.—Passifloras require a light, r enable them to grow and flower finely. The an upland pasture four inches deep, taken of up to mellow for twelve months or more, and turned to ameliorate, two parts; heath-moul moor where the wild heath thrives, one part leaves, half a part; and rotten cow-dung, ha with a due addition of sand, will form an compost.

Situation.—The finest plant of *P. quadran* ever saw was one we had under our care in a stove belonging then to the Rev. James Armitag at Horsforth Hall, near Leeds, in Yorkshi plant flourished so well, flowered so finely, and so profusely, that we cannot do better than de method by which it was managed. A corn bark-pit in which the pines were grown was b with bricks, the space enclosed being two fe the bricks were laid with spaces left, or, as is called, pigeon-holed; three or four courses bottom being solid. The wall was brought level of the curb-stone round the pit. At the this small pit nine inches of drainage, of brick large broken potsherds, were placed, and upo layer of green grass turf, with grass side downw laid. The remaining space, about three feet filled with a compost, unsifted, of the same as we have just described under the head "soil watering was given, and it was allowed to re month unoccupied, that the soil might settle more soil was then added, and the plant, a pr stout one, five feet high, was planted. It b two fruits the second year, and continued t more and more as long as it remained in that We frequently found, whenever the bark was that abundance of roots had penetrated thr pigeon-holes, running freely amongst the bark, especially close to the sides of the bark-pit itsel roots, at least the strong ones, were carefully pres placed amongst the new bark, and the fresh he engendered always stimulated a fresh, vigorou The same plan would, no doubt, answer well fruit-bearing Passion flowers, and all those gro for their beautiful flowers. Where there is no venience of a bark-pit, they may be very su grown in a border at the back or front of t The rest of the points of culture of these charmi must be deferred, as our allotted space is filled.

(To be continued.)

T. A

FLORISTS' FLOWERS.

IN describing the different operations and cares periodically necessary to the successful cultivation of any kind of plants, there must of necessity appear a considerable amount of repetition, although the writer may exert his utmost skill, and bring all his knowledge to bear upon the subject. In our variable climate, for instance, we have (and it is our bounden duty) continually to remind our readers of the indispensible necessity of being constantly on the alert *to protect* their favourite flowers from the changes from heat to cold, from drought to wet weather, and immediately to apply the necessary protection, either from frost or too much sunshine, and to supply the necessary amount of food in the shape of water, or to withhold it when the weather is against its application. We trust the parties interested in these matters will bear with us if we appear at times to imagine they may have forgotten our oft-repeated warnings and instructions. In our next we shall write something more fully under this head, and particularly on the subject of *Roses in pots* for exhibition purposes. T APPLEBY.

THE KITCHEN-GARDEN.

The early planted Cabbage should be properly looked over; for after so long a continuance of mild open weather it is not unlikely that some of the early sown may start; and if any such are to be found, lose no time in pulling them up, and filling the vacancies immediately from those pricked in autumn, or some of the strongest plants from the seed-bed. Plants growing in gentle heat should be pricked as early after they can be handled as possible, either on a gentle hot-bed where they can be sheltered with hoops and coverings, or in some warm corner where they may be protected for a time.

Cauliflowers and *Lettuce* should meet with the same treatment; and all those that were sown and sheltered in autumn should be kept quite clear from decayed leaves, frequently surface stirred, and occasionally dredged with dry dust. Young *Carrots* and *Radishes* in frames should also be treated in the same way, and a succession should by all means be sown in drills at this season of the year. We press the drills eight or nine inches asunder for the Carrots, and a drill of Radishes between them. The latter are early, and are kept well thinned, and their growth is encouraged by dredgings of dust, surface stirrings, and applications of tepid water; so that they are soon out of the way of the Carrots.

Kidney Beans planted in pots at this season should be kept high or cone-shaped, and a rill or cavity should be left between the earth and the outside of the pot, so that the water may be applied without touching their stems, at the base of which they are liable to shank in dull dark weather. If hot-beds are prepared for their culture, the fermenting materials should be well wrought and sweetened in the same way as for Cucumbers and Melons, and the bed made of about the same substance. The soil for the Beans should be placed in ridges fifteen or eighteen inches asunder, and the Beans should be planted on the summit as close to the glass as can be allowed for the setting of the bed, and the growth or height of the kind of bean cultivated.

Sprouted Potatoes should be planted in succession on the same beds on which Asparagus has been forced, or on slightly made beds, protected with hoops, mats, &c.

Cucumbers and *Melons* grown in structures erected for their culture, and heated with a hot-water apparatus, are very easily managed by keeping up a kindly heated, humid atmosphere, and when once in a fruit-bearing state, assisting their growth by applications of tepid liquid manure, and syringing them occasionally with clear soot water; but those cultivated in pits and frames will require skilful attention, if vigorous growth and an abundance of fruit is desired. The materials with which the beds are made requires to be well wrought, healthy, and sweet, and to be kept in this condition by the application of linings of similar materials, effectively placed and well protected with thatched hurdles, furze, or other evergreen fagots, and the top well wrapped up with dry litter, mulchy hay, dry leaves, or any other thing that will attract the principal heat to the summit by which an healthy, kindly interior atmosphere may be obtained and kept up.

Stopping and training also require constant attention; but at the same time opportunities for performing these operations must be watched. Cold currents should be avoided when giving air; and it is sometimes necessary to place a little open straw or a few evergreen boughs before the cavity. The seed of either Cucumber or Melon, if a few years old, should be sown in a strong kindly heat; the pot or pan should be plunged to the rim, and a piece of glass placed over it. As soon as the young plants are observed to be coming through the soil, the glass should be taken off, and in a few hours afterwards the pot or pan should be lifted up, and placed close to the glass. A little kindly soil and some small pots should be placed ready crocked in heat, and when potted they should be placed on a temporary shelf close to the back of the frame so contrived that it may easily be lowered as the plants progress.

Cucumbers should be stopped at the first joint that is made after the first rough leaf appears, and should then be allowed to make three joints; after which they will show fruit, and then they should be stopped at every fruit showing.

Melons may be allowed to make three joints previous to stopping; after which, if they break properly, they will make three shoots, which should be pegged and trained till each shoot has made six or seven joints, and then stopped. They are then expected, with good management, to break at every joint, and to show plenty of fruit. We generally practise stopping one joint above every fruit showing, giving them good encouragement with heated air and kindly humidity until in blossom, and contriving to have the requisite quantity of fruit set, as nearly as possible, at the same time, at which period extra heat should be applied; they should be shut up earlier, and a very moderate moisture maintained in order to start all the fruit into a kindly growth together. Abundance of fine swelled fruit will be the result of such attention if their growth in the after-management is encouraged by liberal applications of tepid liquid manure. JAMES BARNES.

MISCELLANEOUS INFORMATION.

SALTED MEATS.

By the Authoress of "My Flowers," &c.

Bacon is so useful, nutritious, and economical as food, that it is desirable to know how best to keep it; for it is often infected with insects called hoppers, and acquires a rusty taste also, if not properly managed. Bacon should be kept in a box or chest among finely sifted, clean and dry wood-ashes. A layer of these should be placed at the bottom, and between each flitch more ashes should be thickly strewed; and six or eight inches in depth should be put over the top of all. Malt dust may also be used. The great point is to keep the air completely away from the bacon, as well as the flies. If the ashes get damp, as they will do sometimes, they should be taken out and well dried near the fire. This plan will keep the bacon perfectly sweet and fresh, which will not be the case for any length of time if exposed to the air. Hams, or gammons, or small portions of bacon may be covered with coarse linen cloth, stitched neatly and closely on—the cloth should then be white-washed all over, and suffered to get dry, when another coat should be laid on, and this method repeated four or five times in all, allowing each coat to dry before the next is laid on. This effectually prevents the attack of hoppers; and is the plan in America, where the summers are very hot. Without such precautions, great waste and injury takes place both in bacon and hams, &c.; and nothing is so unpleasant as strong rusty bacon. It is cut away, and wasted, and what is even eatable is not good. The chest where the bacon is kept in ashes, &c., should be in a dry place.

Hams are extravagant eating for those who have little to live upon. A good piece of gammon is cheaper far, and quite as good. If bacon is used at home, the hams would be more profitably left on the side, than cut off and cured as a delicacy.

Very fat parts of beef and mutton may be salted and smoked like bacon, and will keep a long time. The *lean* of beef will not be good, and should not be used, only the fat.

Pickled pork and beef are excellent and economical for family use; but they should never be salted, which makes meat hard, unpalatable, and very unwholesome. The following recipe is most excellent, and no family should be without it:—Boil up as much water as is required for the pickle, and to *two gallons* add when boiling, one pound of salt: if less water, less salt in proportion. After the salt is added, let the mixture boil up again, and then put into it, a middle-sized potatoe, with the skin on. If it sinks, take it out, and add a little more salt, boil the mixture up again, taking off whatever scum rises to the surface. Try the potatoe again, and when it *floats*, there is salt enough in the pickle. Till the potatoe floats, salt must very gradually be added, and the trial made every time the pickle boils up; but the potatoe must on no account be kept swimming all the time. In my first blundering attempt, I kept the potatoe in the water; and heaped in the salt, till the potatoe itself was boiled, the pickle more briny than the sea, and my labour of many hours after all was a total failure. The pickle must be well stirred when salt is put in, or it will sink to the bottom. When the scum has ceased to rise, the pickle must be put into a vessel to cool; when *quite cold*, the pork, &c., may be put into it, but not until the meat is completely *drained*, so that it may not in the least discolour the pickle, which should be as clear as pure water. This method of preserving meat is superior to any other; it never becomes salt and hard, and will be as juicy and fresh at the end of six weeks as if it had been in only one. It must be constantly looked at, and the hand put into it, to see if the colour is clear; as if any redness tinges the pickle, it must be thrown away, and a fresh quantity made; and the meat must be well drained and put into it. Sometimes the pickle will be very clear, and yet a scum will have settled on the surface. In this case, pour off the pickle, after taking off the scum, and boil it up again with a little more salt, test it with a potatoe, skim, let it grow cold, and pour it again over the joints. A wooden pickling tub, or small cask, is convenient for this purpose, particularly the former, which is made larger at the bottom than at the top. A pan however will do, if a wooden vessel is not to be had; for they are expensive to buy, and when not in use must be carefully attended to. Joints of mutton may be put into this pickle, if not wanted immediately, and they are very delicate. It is most convenient on this account, especially in the country, where a butcher's shop is at some distance, for meat will never be salt in this way. A small bit of pickled pork or mutton, with vegetables and a simple pudding, is an admirable dinner at any time, and it is a great comfort to an economical housekeeper to have a reserve of this kind to go to occasionally. *Salted* meat must be soaked for hours before it can be dressed, and then it is quite indigestible and distracts one with thirst, but the "Guernsey Pickle" for meat prevents every inconvenience.

I have known joints of meat preserved for a time, by being buried in dry salt, and have been told that they keep almost like fresh meat; but never having tasted it, I cannot speak from my own observation. I have no reason, however, to doubt the authority of my informant. But the pickle I can confidently recommend.

A very small piece of fat pork makes an excellent pea-soup, and may either be taken out of the soup and sent up by itself, or cut into small pieces and served up in the tureen. The first day that pea-soup is made, it may be sent up with the peas in it, and strained afterwards. It is not so *refined* a way to serve it, but it is extremely good, and goes farther too, which is a recommendation to some of *my* readers.

It is a great mistake to suppose pea-soup cannot be made without meat, although it is certainly an improvement. Very excellent soup may be made simply with water, and I do not think that a better dinner need be provided than a good tureen of pea-soup, with potatoes, or parsnips, or both, to eat with it. They give it solidity, and make a most comfortable meal for high and low, whose means admit not of *luxuries*. And better would it be for those who are rich in this world, if they lived upon simpler fare. Their own health would be sounder, and they might bring down a fuller blessing upon their store, by giving yet more abundantly to those who need. I will venture to say, that on a dying couch there are few things upon which we shall look back with less satisfaction than upon that which we have eaten.

ALLOTMENT FARMING FOR FEBRUARY.

In the January advice we adverted to "mixed cropping," promising to enter into particulars in a future paper. Such, to be of service, must be entered into forthwith, for the advent of February is, at least, a signal for all those who have to do with the soil, to have all things in readiness.

There are two very important reasons why mixed cropping frequently becomes expedient. The first is, that by it a greater amount of produce can assuredly be obtained; providing, as was before observed, the cultivator, following such policy, takes care to make himself thoroughly acquainted with the habits of growth of the respective crops, as well as the amount of light absolutely necessary for each, and their times of maturation; or, at least, the period when any given crop, although not quite ready for removal, will endure the partial shade of an advancing crop. The second reason is, that by the occasional practice of mixed cropping, a greater variety of green or root crops may be indulged in than by the unmixed system,—and this is a thing of no mean import to those who, holding but a limited portion of land, can afford to indulge in some vegetable luxuries, and desire, as much as possible, to combine "the useful and the sweet," the greatest amount of profit with the greatest amount of culinary accommodations. Amongst the latter class, we may mainly reckon our amateur friends, many of whom we learn are extremely well disposed towards our labours, and who

disdain not to take a "leaf out of the book" of the little COTTAGE GARDENER, and can turn with pleasure and with profit from an estimate of the make and qualities of a tulip or a pansy to the culture of potatoes, Swedes, mangold, or cabbage.

POTATOES.—Everybody now knows that early planting is, at least, one of the steps by which we must endeavour to restore our lost position with regard to this invaluable root. Some years since, at the commencement of the disease, we wrote much, in various periodicals, to show the country that this visitation was induced through man's neglect; and we now find that these remedial measures have been pursued by most good cultivators, and every one knows that, in proportion as such have been followed up with a steady perseverance, the disease has receded or disappeared altogether. Before suggesting certain mixed crops, let us advise those who care about the purity and strength of their crops, to take all their potatoes for planting, out of pits or bogs immediately, if not already done—not a day must be lost. To proceed with our matter, we must commence with the potato as an associated crop, and one, under a proper management, together with a judicious solution of kinds for the purpose, highly eligible. In using potatoes for this purpose, a careful distinction must be made between the early and the late kinds. We do not merely mean as concerns the earliness of the tuber alone, but the condition of the haulm; for we know of kinds that, although ripe with the fruit, or nearly so, continue green in the haulm for weeks longer, and, consequently, produce a heavier crop. Of this character are some of the kinds commonly termed "second-forward;" a list of which would be given, but that the many are, for the most part, local, and may therefore mislead.

EARLY POTATOES WITH MANGOLD.—This has been so useful a mixed crop, that we have grown it on the same plot for some fifteen years at least. Our potatoes, of the very early class, are planted about fifty inches apart in double drills, that is to say, a pair of drills side by side, and only nine inches asunder. The potatoes are, of course, angled thus— ' ' ' ' ' ', and they are placed about ten inches apart up the rows. We plant in the middle of February; the potatoes having been carefully preserved on dry floors, and possessing sprouts, very sturdy in character, about two inches in length. The mangold is introduced in small drills formed immediately on the heels of the last course of culture which the potato receives, say the end of April. It need only be observed here, that the ground is manured altogether with coarse or half-decomposed manure previous to planting; and in addition, a little soily-looking manure and soot has been used with excellent effect in the drills at seeding time. A sprinkling of salt is applied over the ordinary manure at the original digging. Mangold is known to be partial to saline matters in moderation. We must leave the subsequent culture to a more advanced season, and pass on to other associative crops.

EARLY POTATOES WITH SWEDES.—The proceedings are so similar, both as to culture and distance, to the mangold, that few observations will suffice. In this case, however, we prefer transplanting *the turnips* from a seed-bed.

EARLY POTATOES WITH DRUMHEAD CABBAGE.—In this part of the kingdom, Cheshire, the potatoes are altogether grown in what are termed bouts,—in the vernacular, "buts." This is neither less nor more than the "lazy bed" of our more northern neighbours. Whatever may be the merits or demerits of this plan, we have certainly witnessed, during the last twenty years, some very profitable crops thus produced. However, there is no *necessity* to adopt the "but" system in combining cabbage with potatoes. One thing we would advise in this combination, viz., that the cabbage should be from a *very early spring* sowing, made in the second week of February, on good light soil. Such would be ready to transplant by the time the potatoes had received their last culture, about the second week of May. We should put the potatoes in double drills, as before suggested, each pair of drills nine inches apart in themselves, and at least three feet from the next pair of drills. By the time the potatoes are removed, the cabbage will bear a heavy earthing-up.

EARLY POTATOES WITH BROAD BEANS.—A very useful mixed crop for people in a small way, for they may thus "snatch," as it is termed, the beans requisite for culinary purposes, *at least*, without occupying a special plot. Manuring and digging as for other crops, the potatoes planted early, and the beans any time from the end of February to the middle of April. We may now say something about late potatoes, both of later kinds for the main crops, and also, if combined with other crops, planted somewhat later. For such, whatever is combined with them, must be supposed to be withdrawn *first from the soil*, leaving the late potatoes sole occupiers, in order that the crop may be ample, and that they may acquire a perfectly sound and keeping character with the greatest amount of quality. Our readers will see that, in the case of early potatoes, we have taken it as a necessary condition that the potatoes be first removed, and the reverse with the late ones.

LATE POTATOES WITH CABBAGE.—It was supposed necessary, in former days, for cabbage to stand a long while on the ground. It was common, in many gardens, to plant the large kinds in October, and to let them remain until April of the second spring, thus making eighteen months. Now, although cabbage stumps in highly manured ground will produce abundance of sprouts after the heads are cut, yet, such a course involves but a short-sighted policy at best, inasmuch as it impedes the course of a proper rotation, and tends to clog the principle of associative or mixed crops; moreover, in these days, we have such excellent varieties of cabbage, producing much bulk of nutritious food in a very small compass, such as the Matchless, the Nonpareil, Shilling's, &c. Thus, good Matchless cabbage sown in the first week of August, and "pricked out" betimes, will be a very stout plant by the time some of the root-crops are removed in October, when the ground may be manured and deep dug immediately, and planted with the cabbage preparatory to the introduction of late potatoes in spring. Now, if the allotment holder fully understands the utility of always having a few plants at hand, he will sow cabbage *every month* from the beginning of February to the end of August. Thus provided, we would plant a couple of rows of very strong plants of the July sowing just where the row of potatoes were to be, and those of a month's later sowing in all the intervening spaces. Thus the July sowing might be drawn up straight a-head in the beginning of April, bunched, and sent to market, thus making way for a single or double drill of potatoes. The remaining portion would stand until the middle of May, at which period they will have nice hearts, and may be bunched as before, and hurried into market. We can now fancy the cottier saying that he wants to grow cabbages for his family's use, and a laudable object too. We will, however, show him how to do this, and put an extra pound or two in his pocket besides. Let him,then, plant all the cabbages required for his family on portions of the ground where they are not compelled to be hurried off; we grow some thousands every year in four feet beds on mere borders. One bed of ten feet long by four feet in length produces, at least, eighty nice "Matchless" cabbages. To return to the late potatoes, the drills must be nearly four feet apart; that is our practice. But a drill is drawn on *each side* of this four feet line, thus reducing that distance; in fact, the potatoes are planted in double drills, as before described. The potatoes may be cleared and thoroughly cultivated after the cabbages are gone, and the "breathing-room" between the double drills will be found not by any means waste ground, for the potatoes will stretch freely out, and we will engage that each drill in that amount produces thirty per cent. more produce than continuous drills.

LATE POTATOES AND BROAD BEANS.—In this case we must turn the tables awhile. With the early potatoes as an associative, we talked of planting the Broad beans in March or April. We have now to support the bean planting as early as possible, for they are naturally a late article. Indeed, plant as early as we will, the beans cannot be cleared away before the end of July, therefore we assuredly see little gain in alternate rows of beans and potatoes. We have, however, known this combination a very useful and successful one, when the potatoes were planted in the "bouts" before described. Our favourite plan, nevertheless, would be double drills, which, although at first sight apparently an unworthy compromise between the drill and the "bout," is assuredly in several cases a very profitable course of culture. In such a course, the ground should be prepared in the autumn or early in the spring, with the necessary amount

of manure, and the beans planted in raised drills in pairs, the centre of each pair being about three feet apart, and a row of beans about five inches respectively apart from the centre of the drill, planting the beans about a foot apart in their own line. Such drills being well raised, and thoroughly worked, the soil would be in a mellow state late in spring, and we would plant the potatoes one row down the centre (between the double row of beans) about the middle of March, at which period the beans should be four or five inches in height. Neither the beans nor the potatoes would require any particular culture until the middle of May, when the hoe may be put in use, and the crop altogether put in a thoroughly clean condition. The beans will be in use from about midsummer until the beginning of August, when, whether completely exhausted or not, they must be cut off level with the ground, and thrown to the hog. We have now exhausted the principal suggestions we had to make as to that kind of mixed cropping, of which the potato forms of the principal features. We feel that our space will not permit us to go further into the subject of mixed cropping at present, neither is it necessary that we should do so; it will, probably, be resumed in the allotment paper for March, and the observations will be directed much to seeding matters, for other crops form occasionally interesting and profitable combinations. We conclude with a few miscellaneous remarks.

PEAS.—The beginning of February is an excellent time to sow a full crop of peas. These will come in during July and August. We think no sort better for an allotment holder than the Green Imperial, for these are large and fine peas, heavy bearers, and have the property, useful in this case, of ceasing to ramble as soon as they are well-cropped. They may thus be cleared off the ground in the end of August, and a thorough crop of the Matchless cabbage, from a June sowing, obtained off the same plot.

BEANS.—Plant the Broad Windsor liberally in the first week.

CABBAGE.—Look over the plots planted in the autumn, and mind any blanks which may have occurred. Those who have nice plants pricked out in the autumn, must get them finally planted out by the end of the month. Let a sowing be made also in the second week, choosing a dwarf sort. Of course, the hoe will be used amongst existing crops, and a little soil drawn to their stems.

SWEDE TURNIPS.—A few strong roots put close together in a drill in some warm corner will produce delightful sprouts for greens through March. Let them be put in during the first week.

HORN CARROT.—Sow some in well-wrought and rich beds in the second week. This is one of the most profitable crops a cottager can grow, especially if the soil be warm. Every small holder should count on sending a few hundred bunches to market during the month of May, when they realise good prices.

PARSNIPS. — These may be sown during the last week of February; trench deeply, and put the manure in the bottom of the trench.

LETTUCE.—In the last week, also, a pinch of the Bath Cos lettuce may be sown on a warm border.

SPINACH may be sown in the middle of the month, as a temporary crop between some others.

PREPARATORY WORK.—Let all stubborn soils which had been ridged before winter, and which are intended for seeds of onions, carrots, &c., be turned over, if possible, when in a dry state. Manures should, of course, be got out as occasion serves, and if they *must* lay awhile without digging them in, by all means throw a coating of soil over the hillocks, in order to prevent a waste of their qualities.

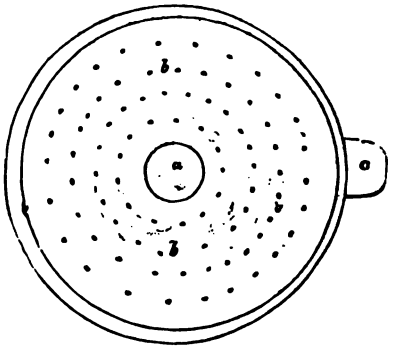
R. ERRINGTON.

THE BEE-KEEPER'S CALENDAR.—JANUARY.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide."

LOOK well to the *coverings of hives* at this season, and see that no wet gets through them; and to *boxes*, also, that no moisture is generated within them by condensed vapour (see Calendar for January); and upon a mild day let the *floor boards* of both be cleaned with a dry hard brush. *Feeding* must also be carefully attended to, for the mild temperature of December and the early part of January, has caused a greater consumption of food than is usual at this season.

FEEDING PANS.—Having been frequently applied to for the plan of a feeding pan best adapted for my Improved Cottage Hive, I am induced to answer the very many applicants through the pages of THE COTTAGE GARDENER, by giving a description of the one I have been using for the last two or three years. It is made of stout zinc, circular, eight inches in diameter, two and a half inches deep, having a circular hole of two and a half inches in the middle of the bottom, with a rim round it standing up two inches; a float of wood very thin and perforated with holes is made to fit inside, but sufficiently easy to rise and fall with the liquid in the pan; the holes in this float must first be made with a gimlet, and then burnt with an iron, or they will fill up after having been in use a little time; the whole is covered by a lid with an inside rim, the lid having a piece of glass in the centre, of two and a half or three inches in diameter. When first using this feeding pan, I found much inconvenience in being obliged to remove the lid every time that a fresh supply of food was required; to obviate this difficulty, I had a half circle, three inches in diameter, attached to its side, with a lid or cover, and communicating with the interior of the feeding pan by a hole cut in the side, and covered with a piece of perforated zinc, so that by looking through the glass in the lid I can see when a fresh supply of food is required, and I have then only to raise the lid of this additional side-piece and pour in the food, which passes readily through the perforated zinc, and raises the wooden float upon its surface. Four very small tacks should be driven into the under side of the float, at equal distances from each other, to prevent its going quite to the bottom of the pan; and it is also necessary for the rim in the centre of the pan to be roughed with a file, or to be lined with perforated zinc, to enable the bees to ascend more easily than they would otherwise do if it was left quite smooth.



a, Circular hole through which the bees ascend; *b*, The feeding pan containing the food, which is put in at the side-spout, *c*, and upon which the float rises and falls.

The float should be less than an eighth of an inch in thickness, and is better to be made of mahogany. Should wood be preferred to zinc, a very good one has already been given on nearly the same principle in page 136, vol. i., of THE COTTAGE GARDENER; but I very much prefer zinc for several reasons.

THE GRAND EXHIBITION.—As an apiarian I am anticipating a very great treat at the forthcoming Grand Exhibition in seeing a vast quantity of hives of different kinds, as well as some very superior specimens of honey. There are, I understand, a very great many exhibitors both of hives and honey; indeed, more, it is feared, than will be able to obtain the room they are wishing for. I took a trip myself for a few miles the other day to superintend the packing of two splendid specimens of honey in glass for exhibition, and the apparatus by which they were both obtained from the same stock, and that in a straw hive. By this little invention the very *finest* honey is certainly obtained, and swarming also is said to be effectually prevented. I am happy to say, that as the Exhibition opens in May, it will be quite in time for us all to copy this little affair, and to have it in operation this season; for it is a very simple thing, and may be made in two or three hours.

HISTORY OF AN APIARY.

I COME now to the history of my *fifth* stock,—that one of the two intended for experiment, which survived the winter. It was the perusal of Dr. Scudamore's book on artificial swarming (of which I have already spoken more than once) which induced me to purchase these stocks, with a view to give the system advocated by him a fair trial. I doubt not the majority of your apiarian readers will be glad to know the result of my experience on the subject; the more so, as I am happy to say it is at present decidedly in favour of this method of managing bees:—I use the word "happy" advisedly, because it is evident that if artificial swarming can be practised systematically with success in the matter of profit, and without the existence of any very serious objection to it on the score of difficulty of management, it is a discovery the most valuable and important imaginable to the amateur bee-keeper. I must, indeed, prepare the reader for disappointment in respect to my own stock, for my first trial of the process, as recommended by Dr. Scudamore, certainly ended in a failure; but in a second series of experiments, conducted in the apiary of a clerical friend, who is as fond of experimenting with bees as myself, so much success followed our labours as to convince me that the practice of artificial swarming is deserving of extensive adoption, certainly in all apiaries which pretend to be conducted on scientific principles. In my forthcoming bee-book I have given ample instructions to all who may be desirous of learning how the process may be most safely and easily conducted,—instructions based on the conclusions which my last year's experience has established satisfactorily to my own mind;—in this place I propose to detail the experience itself on which those conclusions were founded.

To begin, then, with the history of my own stock, I find the following entry in my note-book, under the date of February 25th. "Saw bees laden with pollen, in numbers, entering E. hive." This of all signs gave the best augury of success: and pollen-gathering continued with similar activity through the early part of March and the whole of April. Diligently, however, and impatiently as I watched the stock, not a drone appeared (the signal of preparedness for experiment on the part of the stock) till the 9th of May, when one fine fat gentleman was caught in the act of entering the hive after an excursion in the air "to get him a stomach" (as old Butler quaintly expresses it) by air and exercise. A note was in consequence quickly indited to my friend Mr. C., acquainting him with the joyous event, and requesting his presence on the 11th, weather permitting, to assist in forcing a swarm from the stock. With what impatience was the day expected! With what anxiety was the weather watched! It will be still fresh in memory how unseasonably and drearily May 1850 ushered itself in, and how far into the month the last struggles of winter extended. Fortunately, however, the 11th turned out everything we could wish for; the morning was mild, calm, and cloudy—the perfection of weather, in short, for the purpose we had in view. True to his summons my friend appeared, when, after a hasty breakfast, we sallied forth to the scene of operation, distant a mile off; for my own garden is unfavourable to the establishment of an apiary, owing to its proximity to a town. Arrived there, the preparations for our day's work took us some time, chiefly because we still groped in uncertainty as it were, so that eleven o'clock came before we actually commenced the operation. Soon, however, we found ourselves *in mediâ re*, with a bevy of curious spectators gathered round us, standing, however, at a respectable distance. Well for us indeed was it that we were well protected, albeit, not in Bond-street costume, else we should have suffered considerably from the weapons of our insect foes; and yet they were by no means so vicious as I had anticipated. It was just at first that they seemed most angry; perhaps the discovery of the loss of their queen disarmed their fury after awhile.

The proceedings opened with the familiar process of driving the bees out of the stock into a temporary bell-hive. We succeeded in dislodging them most effectually, the operation being conducted within two yards of the old stand, whence the full hive was taken, and where, during the operation, a second temporary hive stood to amuse the bees which returned from the fields, unconscious of the removal of their old dwelling. These were very numerous, so as quite to present the appearance of a swarm issuing from its hive, and coursing about in the air; but few of them were such as escaped from the stock itself during the conduct of the operation. On removing the upper hive, after drumming twenty minutes or so, a very powerful swarm disclosed itself to view depending from its roof, in a state of stupified and motionless tranquillity, while the old stock itself appeared almost depopulated. The swarm was now placed as carefully as possible on the old stand, after removing the temporary hive from off it, and the old stock carried off to another part of the garden. Unluckily, as will be shown in the sequel, it was left uncovered. Returning quickly to the scene of action, a table-cloth was spread on the ground in the same place where the driving process had been conducted, and the new hive, a large flat-topped one (improved after a fashion of my own), rested on sticks upon the edge of it. Without delay the swarm was taken off the stand, and dashed out *en masse* upon the cloth in front of the new hive, which they were destined permanently to occupy. Nothing can equal in interest the scene which usually occurs on this so rough treatment: the bees seemed stupified at first, and at their wits-end; there they lie where they fell, moving indeed, but purposeless and irresolute. The queen, however, is the first to recover; her motions reanimate the bees: she runs hurriedly towards the nearest object (which in this case is the hive purposely set near at hand in order to attract her, redolent with honey and the fragrance of sweet herbs, with which it has been smeared); her subjects, some of them at least, also move in the same direction: presently the whole swarm catches the new impulse, and marches after her almost in military order, with their wings fluttering, their hearts beating (as we may believe), and their pulses quickened with emotion; for this forward movement occurs simultaneously with the general discovery by the whole swarm that their queen-mother is in their neighbourhood, and in a place of safety. Thus was it in the present instance; the bees were too occupied with their unusual circumstances to sting, and the spectators were too much interested to care about their possible attack; so that the novel sight was thoroughly enjoyed by all present.*

In five minutes the major part of the swarm had ascended into the hive, which was lifted off the ground, and placed on the stand whence the old hive had been taken. At first there were a great many bees spread over it, but in the course of the day they all found their way into the hive; so that when night approached not a bee was to be seen outside of it. A common bell-hive was then set over the new swarm, surmounted by a hackle; and thus it remains to this day.

After arranging the swarm comfortably in this way, attention was directed to the old stock, which had hitherto been forgotten. On examining it previous to removal, scarcely half a dozen bees appeared among the combs; all who were able to fly had doubtless escaped and entered the new swarm, which stood in the identical place where they had been accustomed to seek their old home. Without loss of time it was tied up, and carried off to another garden half a mile distant, where the bees were kept prisoners till early in the morning of the 13th.

A COUNTRY CURATE.

BEE-FEEDING AND DEPRIVING.

I AM indebted to THE COTTAGE GARDENER for a vast deal of information on various subjects, but most particularly for having rekindled in my breast the noble ardour that I felt when, as a small boy in pinafores, I revelled in the *romances* of the fourth Georgic, and for having prompted me to keep bees. Of course I began by *improving* upon the instructions that I had derived from your interesting pages, and from *Taylor's Manual;* concluding that the bees would act according to my wishes, and not according to their own instincts; but, by degrees, I have curbed the impetuosity of my desires, and am now following pretty well in the paths of my predecessors. Altogether, I have been very successful in my management; in fact, more so than I anticipated, seeing that I am domiciled in a locality that my country friends are pleased to call London, but which is in reality one of those delightful places where evergreens are evergreens

* It is not always safe, however, to approach too near at such a time, especially in warm weather.

but in name,—where self-constituted architects indulge in their peculiarities by clapping Corinthian columns and Gothic windows into buildings of a "Composite" order, that they are pleased to call houses, where the comfort of the dwellers in the attics is sacrificed to the picturesque effect of an I-don't-know-how-many-pointed roof, and where stucco gentility and "aerial" policemen are the order of the day. Of course, under these circumstances, I had to contend with the predictions of innumerable prognosticating females. First, I was not to have any honey at all; then, if I should happen to have any, it would taste of soot; then, if it did not taste of soot, it would have no flavour at all, and so on. However, I persevered, and the result has been honey that has satisfied all the soothsayers. I send you the following suggestions, that have occurred to me in the course of my short experience:—

As to feeding.—Metal feeders are frequently objected to, on the ground of their being cold and slippery for the bees to mount. This objection I have obviated by roughing the bottoms and tubes through which the bees ascend with sand. I wash a little rough yellow sand in different waters till all clayey matters are gone, and then dust the clear grit over the parts where it is wanted, having first wetted the part with spirit varnish. Upon repeating the process two or three times, a good rough and comparatively warm bottom is obtained. My bees certainly objected to enter the feeders before I had taken this precaution, but then I used to feed them with sugar and beer; whether they would come up now for the same beverage I do not know, as I do not use it at present, having taken to sugar and water (1 lb to half a pint), as recommended by Taylor. I never had any difficulty in disposing of sugar and beer at the bottom of the hive in saucers, when the weather permitted the bees to be out; and I fancy it greatly aids the first swarms, however fine the weather may be.

But why use metal feeders at all? The bell glass, &c., are expensive, and with very little trouble—say getting up half an hour earlier three or four times—you can make excellent feeders for a mere song. Mine may be described as follows:—A box of wood, eight inches square and three deep, inside measure. The bottom is made of three-quarter-inch stuff, shaved away a little at one end, by way of allowance for the incline forward of the hive. The sides of quarter-inch mahogany panel board. Any wood will, of course, do; the drier the better. An inch from the thin end of the bottom is a division, running to within 3-10ths of the bottom.

The tube through which the bees ascend is made of one of those tubular German lucifer match boxes, that have almost superseded the old chip ones. The bottom of the lucifer box is cut out, and the rabbet on which the lid fits is fitted tightly into a hole cut in the bottom of the feeders. A flat piece of glass goes over the whole. The box is well painted inside, and the whole production is rather neat than otherwise. It works admirably. You have only to push down the glass so as to uncover the inch division, when you desire to give more food, and push it up when your object is accomplished. There is no doubt about the celerity with which the food is dispatched.

A fork of wood, or a couple of bits of the garden broom, to hang on to the edge of the tube, and so down into the hive, I have sometimes found convenient for the purpose of letting the bees know what is going on up above.

As to floats.—I have tried all sorts of things, but I have found nothing to do so well as thin cork, punched full of holes, and dipped once or twice into spirit varnish, taking care on each dipping to blow through the holes to clear them. It is not always possible to get cork in sufficiently large pieces. A needle and thread, however, will soon enable one to surmount this difficulty.

As to dampness in the hives.—Though I have always carefully kept the bell-glasses over the centre hole in my hives, they sometimes happen to get very wet from condensed vapour inside, which seems to be confined in one place by the peculiar curved formation of some of the combs. A hole about a quarter of an inch square effectually carries off such vapours, and the straw gradually dries. The hole can be made with a penknife in half a minute. I am very particular about ventilation; the consequence of which is, that though I change my floor boards twice a year, I might as well save myself the trouble.

As to taking off small hives, &c.—The first portions of honey that I took this year, I had the usual amount of trouble with moving about the glasses from place to place, sweeping off the bees from the honey, exposed by dividing the combs, &c.; besides flourishing about, for the edification of my neighbours, with my coat buttoned close up to my throat, and my body enveloped in yellow gauze, which was terribly close work on a warm summer's day. However, on the last occasion, my good genius came to my assistance. I thought I would try the plan pointed out in the books for ascertaining where the queen is, by dividing the super from the stock, and seeing which half took the infliction most quietly. I did so; the stock continued quite happy, so I left the whole as it was for the night, hoping that the confusion which I calculated was taking place in the super would become worse confounded by the next morning, and that I should have no trouble in bearing off my share of booty in triumph. But it happened that the next morning there was not a single bee in the super. I at once searched for the cause, and found that, in consequence of an irregularity in the working of the straw, there was a considerable aperture in one place between the adapting board and the super, that I had not before perceived (I keep my hives protected from the weather, both sun and rain, by a kind of jacket, made of tin, that stands upon the floor-board, which is considerably higher than, and entirely surrounds, the stock hive; and being covered over with a milk pan, leaves me plenty of room for the working of glasses, &c., inside). The bees finding that they were cut off from their queen, made for this aperture, and entered the stock from the outer entrance. I have not had another opportunity of trying the same thing, but shall certainly do so. It can easily be managed by lifting up the super a little on one side, after having divided it from the stock. If the plan will always answer, the ingenious trap described in one of your former numbers, and the trouble incidental to taking jars of honey, may be dispensed with. Should the queen happen to be in the upper hive, it will soon be discovered, and the attempt again made on another day. She is, however, generally in the brood combs.

SELECTED LIST OF CHRYSANTHEMUMS FOR 1851.

OLD VARIETIES.

Annie Salter; pale yellow; very double.
Beauty; pale lilac; large and fine.
Campestroni; purple; large and fine form.
Compte de Rantzeau; bright crimson.
Defiance; white; very good.
Duchess d'Aumale; large white; a fine flower.
Fleur de Marie; very beautiful, white; Anemone-flowered.
Formosum; white and yellow; fine form.
Grand Napoleon; purple; rather quilled.
King of Crimsons; fine dark crimson.
La Reine d'Or; golden yellow; very double.
Madame Poggi; crimson maroon; fine.
Madame Meillez; pale peach; fine flower.
Nancy de Sarmet; pure white; Anemone-flowered; very good.
Pharamond; fine, large, salmon coloured.
Princess Marie; rosy blush; fine flower.
Princess Royal; fine large rose.
Queen of Gipsies; dark orange.
Queen of Yellows; fine dark yellow.
Temple de Salamon; bright yellow; very fine.
Triumphant; pink and buff; early bloomer.
Victory; fine large white.
Vulcan; fine dark crimson.
Zoe; very large; rosy-blush.

VARIETIES MOSTLY SENT OUT IN 1849.

Agenora; rosy claret.
Armand Tessier; rosy purple.
Barbarossa; buff.
Belle de Versailles; creamy white.
Bijou; fine violet carmine.
General Negrier; orange nankeen; fine.
Gouvain St. Cyr; dark bronzed orange.
Louis Napoleon; reddish salmon.

ne Comerson; crimson; fine form.
; small white, tipped with rose; beautiful.
; rosy carmine, orange centre.
s (new); rosy carmine, light centre; very fine.
pearly white.
fine large rose.
of England; blush-white; splendid large show flower.
'Amour; pale peach; fine.
reum pallidum; sulphur and yellow; Anemone-

; vermillion red.
(new); bronzy rose.

VARIETIES LET OUT IN 1850.

of Gold; golden yellow; extra large and fine.
; bright gold; Anemone-flowered.
Lind; sulphur white, yellow centre.
Talfourd; large pure white; very delicate and pretty.
n; rosy blush.
am; carmine red.
is; carmine and yellow; incurved.
arden; deep orange.

IS—VARIETIES OF THE CHUSAN DAISY-FLOWERED CHRYSANTHEMUMS.

onne; white, tinted with lilac; very pretty.
n Bébé; pale rosy lilac; very double; the size of a

bright golden yellow; very fine.
lilac; very pretty.

RIPTION OF THE DOVE-COT PIGEONS.

SIXTH RACE.

(*Continued from page* 72.)

ISLE PIGEON: *Columba insulensis.*—This superb igeons belongs to the division of Pouters, since like ding, they have the power of swelling their throat, ot to so great a degree. The swelling in the always has a spherical form, whereas in these it oval form of a long pear, the narrowest part of towards the breast, and the largest to the under ie beak. These pigeons have derived their name city of Lisle, where they are as much esteemed as

Their head is small, and the beak long and thin; not subject to the same complaint in the crop as rs.

E ELEGANT LISLE PIGEON: *Columba insulensis ele-*
s of an elegant and graceful form; the body placed rtically on its legs, so that the head is in a line with the feet; the head is small; it has no filament round the eye; and the iris black; the feet are shod, the middle claw only is covered with feathers—a character being met with in this variety alone; wings long and crossed; plumage blue, with black stripes, or all white, silvery white, slatish coloured, or white with wings streaked with pearl grey. In this last colour, which is the most rare, and, therefore, the most esteemed, some have the wing marked with brown spots, like the Ermine; others are dotted with grey, or a purplish colour. This bird, whose flight is rapid, is very fruitful; and we cannot too highly recommend it to those amateurs who like to combine utility with beauty.

42. THE CLAPPING LISLE PIGEON: *Columba insulans crepitans.*—This pigeon makes with its wings, when it begins to fly, a noise resembling a clapper, from which it derives its name. M. Vieiltot only considered it as a variety of the Tumbler pigeon, with which in fact it has a great analogy; but it swells its throat in a visible manner, which the other never does. The wings are long, and crossed over the tail; it has a filament round the eyes; the feet are shod and spurred; its plumage is white or chamois-coloured, or blue shouldered with white, that is, having the upper part of the wing white. It is very productive, which causes it to be much sought after.

(*To be continued.*)

THE DOMESTIC PIGEON.

(*Continued from page* 358 *of vol.* IV.)

ON THE YOUNG PIGEON.

AT the age of six weeks, or two months, young pigeons have all their feathers and the greater part of their colours. It is then that amateurs ascertain their real value, and it is also the time when the merchants, anxious to sell them, dress them up to deceive the honest purchaser.

As soon as young pigeons can feed themselves, the breeders take them from the dove-house, to prevent their interrupting their parents and the new brood. If they are left with them, they continue to follow them sometime after they are capable of flying; will annoy them even in the nest, from which the female especially, has not the courage to drive them; and soil or break the eggs, or at least impede the incubation. They may be disposed of in the interior breeding-cage, or in any cages that can easily be cleaned, provided they are sufficiently large, and it is in these cages that we can the soonest judge of their sex.

From the age of three or four months the small species begin to show their sex, by the first amorous signs. It is a cooing they begin to make, accompanying it with some salutations when they approach a female. The large species are more backward, and it is not till near five or six months that they exhibit such signs. At this age all species may be coupled.

The two little ones of a brood are very commonly destined by nature to form a couple, that is to say, that they are generally male and female; but this is not an infallible rule; and when they are of the same sex it is very difficult to recognise them, because in both cases one is always larger than the other. It is extremely difficult to distinguish the sex of a pigeon, whatever the age may be. We may acquire some knowledge by great experience, but never sufficiently to be able to judge with certainty. Some amateurs, however, have even boasted of being able to tell the sex of a pigeon before it is born, that is to say, as soon as the egg is laid; they pretend that in looking through it, if the spot or germ is placed a little way from the end, the bird will be a female, but if on the contrary the spot is very near the end, it will be a male. It is unnecessary for us to say that this opinion requires to be confirmed by careful experience, which is very difficult, because the pigeon is in the habit of moving its eggs every day while sitting. It would be absolutely necessary to mark them, and then the moment they are hatched to take away the shells, and distinguish the little ones by some means, which appear to us much more difficult to find.

Young pigeons are still more embarrassing than the old, when we seek to recognise their sex, because it is not betrayed by any amatory sign. However, the males generally have a larger head and stronger beak. In the striped

varieties they may be distinguished by their stripes, that is to say, by some black spots which the females never have.

Old birds present some other characteristics besides these, but which are not less uncertain. In the males, the prominence of the nostrils is much more apparent, whether we look at the beak sideways or facing; the white tubercles that cover this membrane are also larger. The beak of the female is straight, seen sideways, and its tubercles are smaller; the upper end of the beak is covered with rather longer feathers; its head is more fine and straight; its eye is softer and not so sharp; its tail, always less furnished, is also cleaner than that of the male, because when he is in love, he is in the habit of trailing it heavily on the ground; the result of which is, that from turning incessantly round the female, he wears out, soils, and breaks its extremity.

I have seen a remark made which I do not vouch for as being more sure than the preceding, which is, that when we take a pigeon, especially a young one, the male bristles up, snaps his beak if he is very young, and strongly presses down his tail; whilst on the contrary, the female, more gentle in character, does not show any sign of anger, raises up her tail, or keeps it in a horizontal position. The way never to be deceived, is not to judge of the bird's sex until the amorous age arrives.

We ought to couple pigeons as soon as we perceive signs of that age, but they will not be in their full vigour until a year old, before that time we have no right to expect very regular broods. From one year old to seven and even eight they enjoy their greatest strength, and possess all the fecundity of which they are capable. After that time their broods diminish, and generally cease altogether when ten or twelve years old, which is the common life of these animals. They have, however, been known to lay and rear their young at twelve or thirteen years of age, and live to fifteen, but these very rare examples are exceptions to the general rule.

ENGLISH CAGE BIRDS.

THE WOOD WARBLER.

INSESSORES DENTIROSTRES. SYLVIADÆ INSECTIVORÆ.

Sylvia sylvicola; Motacilla trochilus; Curruca sibilatrix; Sylvia sibilatrix: The Wood Warbler; Wood Wren; Yellow Wren; Linty White.

THIS beautiful little bird is another summer visitant arriving in this country about the end of April, the males usually making their appearance first. Its usual resort is amongst woody plantations, preferring tall trees, especially beech or ash. Its song is very simple, being a continuation of a note resembling the word *twee*, sounded long, and very frequently repeated; and it is said to be accompanied by a tremulousness of the wings as the notes are repeated quicker in succession. Its song is often delivered during flight. Its natural food consists of insects and their larvæ, caterpillars and their flies. It does not eat either fruit or berries; nevertheless it can be kept in a state of confinement. Those which I have had in captivity, have been reared from the nest, being fed on meat and hard-boiled eggs, bread and milk and hempseed mixed together, and maggots obtained from the tallow melters. I keep them in a round basket in their nest, taking care to have them scrupulously clean and warm, varying their food as above, and giving them a drop or two of water. They require to be fed several times a day, giving them as much as they will take each time. They will, at length, learn to feed themselves; but they will peck at living insects some time before they will eat the artificial food prepared for them. They delight in pecking off the branch of a rose-tree the aphides or plant lice with which the rose and other trees are infested, and thus are of essential benefit to man in the destruction of those pests. The Wood Wren leaves this country about the middle of September. Its nest is of an oval shape, domed over, always placed amidst herbage on the ground, and is formed of dried grass, dead leaves, a little moss, and lined with fine grass and hairs, but no feathers—differing from other species of this genus in that particular. W. RAYNER.

[Mr. McGillivray, in his most truthful *History of British Birds*, gives the following notice from his friend Mr. Hepburn:—

"It was on the 5th of May last (1838), the thermometer 58°, that I first observed the Wood Wren, Sylvia sibilatrix. A solitary bird was skulking about a hedge-row, which bounds a plantation on this farm (Whittingham); the wind was cold, and the sky overcast. The following morning was most delightful, dew-drops hung from every spray, glistening like pearls in the rays of the bright sun; the Wood Wrens, joyous at returning to their native land, and full of animation, were sporting about, and making the woods resound with their sweet wild notes. Nor were our more common birds silent; a mysterious sympathy seemed to unite all in performing one common hymn of grateful praise to the God of nature; the very calmness of the clear blue sky seemed to utter the gentle breathing of enjoyment. For some time after their arrival, the male loves most to mount to the top of the tallest tree, where, adroitly poising himself, he pours forth his beautiful song, resembling the syllables, *twee, twee, twee*, at first rather slow, but afterwards in a hurried manner, and accompanied by a curious shake of the wings, and occasionally by a slight vertical motion of the tail. On Monday the 14th May, when observing the manners of this bird, one of which was sporting in a tall hedge-row, I disturbed a humble bee, Bombus terrestris, which was feeding on the expanded flower of the common but beautiful Dandelion. After circling and murmuring round my head, it flew off in a direction parallel to the hedge; and as it passed the Wood Wren, he ceased his song, and darted at it. I was so near that I distinctly heard his bill crack against the bee's horny sides. The insect was stunned, and nearly fell to the ground, while the Wood Wren returned to the hedge, from which he again made an unsuccessful dart at the poor bee. From the 14th to the 28th July, I never heard the Wood Wren's song, although I saw plenty of the birds daily. During this period the weather was cloudy and very often wet, the east winds felt cold, although the thermometer ranged from 58° to 69° at noon. After this we had fine weather, when their song was again heard.

"Between the 8th of August and the 10th of September their voice was not heard during windy weather, unless when it fell calm. Notwithstanding the high range of the thermometer, the wind, particularly the east wind, felt very cold, when they did not sing. The 6th of September was a very stormy day, but about noon the wind and rain ceased, the sun broke forth, and the Wood Wren's note was again heard. When bad weather was impending, they sung very little. Both this bird and the Willow Wren are very tame; those in our garden would allow me to approach to within five or six feet of them, and often nearer. It was on the 10th of September that I last saw this favourite bird: several were sporting on a row of tall poplars in the garden; the weather was very calm; their song was very distinct. It still rings in my ears, and I long for the season when the Wood Wren will revisit his native place. The young are fledged about the beginning of July."]

WALLS OF EARTH.

"Earth leads to many thoughts."—ANON.

I HAVE been greatly struck with Mr. D. Beaton's treatise on bank walls or mounds; and though in some fear of appearing wise beyond what is written, I cannot help trying to put into words the association of ideas which have arisen in my mind from the pleasant perusal of his very practical suggestions.

The old so-called walls of ancient cities are formed, in the manner partly described by Mr. Beaton, of clay, sun-dried bricks, and proper baked bricks. Many of the most ancient houses were of a nature of the ice-houses, tool-houses, &c., suggested by him for the interior of his constructions. Further, it would not be difficult to trace an analogy between his facings of concrete, and ornamental trellises of flowers, &c., with the stuccoed facings, and painted, sculptured, and otherwise ornamented surfaces of the old walls described by Herodotus, Diodorus Siculus, and the best of writers, whose poetical descriptions men were slow to believe till Layard and Co. began to excavate the seeming heaps of mere earth.

Now, I wish to know what is to prevent a scholar-like patron of one of your scientific gardeners from trying at his

garden ground, and perhaps, too, his pleasure garden, surrounded by a wall of Babylonish construction; the coach-house and stables might be hid from sight; the east wind or the north, or any other pernicious blast, might be thus effectually screened off; and the mound thus made at the same time might tell for something—convey a reminiscence of the past, and so a better idea of the future. I once travelled on a railway, on an opening day, with a great antiquary. When the train should have set off, it backed. Some looked afraid; others laughed, but said it was a bad omen. "The antiquary" quoted an old French proverb, "*Pour mieux sauter il faut reculir.*" At the time I was much amused at his queer face when he *first* told us what the sense of the words was; and *then*, pretending to have forgotten his French, he with great effort blundered out the words with as much show of ignorance as a pedant would have made of knowledge. Afterwards, when the shares *recoiled* I bought in, and made *a good leap* in consequence. This is always my apology for the alleged retrograde, crab-like tendency of ancient learning.

To return, then, to the year 1851. I think it would be a great gain to supersede the ugly, expensive, house-of-correction-style of park wall or kitchen-garden wall, by something in the Ninus and Semiramis style of the year *circa* 1851, B.C. Possibly a Ha-ha outside would be required. At some railway stations one often sees little gardens laid out with great taste; but I apprehend that much larger surfaces of embankments might be *Beatoned* to profit for fruit, strawberries, and what not. Everybody knows the value of a fruit wall, and most gardeners like a nice sloping exposure towards the morning sun; but a slope as steep as the roof of a house is not often seen in cultivation.

There is, in the recently published account of the surveying voyage of Colonel Chesney, some very curious information about water, and the general practice of conveying it underground. I do not know that it would be immediately interesting to the readers of THE COTTAGE GARDENER; but as a matter affecting the health of both animals and vegetables, I think that the principle is excellent, and should be more strictly enforced in this country, though for the contrary reason. There water is scarce, and they convey it all by pipes underground to save the loss by evaporation. Here, at least in this neighbourhood, it is in excess, and we suffer from the great evaporation going on from our ditches, babbling brooks, &c. They should, as a rule, all be piped; and a great populous country like ours ought not to be behind such an out-o'-the-world place as Persia. And yet in this respect we are so.

And to read of the water carried nobody knows how many miles by pipes made of raw hides for the supply of Cambyses' army, it is astonishing that with gutta percha now at our command so little is made of that material. Here is the passage:—

"During the mad expedition of Cambyses, a king of Arabia caused a canal to be made of the skins of oxen and other animals, sewn together raw, extending from the river Corys, a distance of twelve days' journey, into the arid country, where it supplied the army." The author quotes Polybius, B. iii. ch. 9. He states that water is, in one instance, now carried by subterraneous pipes for forty miles. The whole account of Chesney, ch. xx. vol. 2, is highly interesting; and *mutatis mutandis* much of it might be well imitated in this country. Think of giving a man the inheritance of five generations in the land for bringing water where no water was before; think of the Shah being paid rent for the *water* instead of for the land; and above all the following passage: "The day of bringing the water to its ultimate destination is made a day of rejoicing among the peasants, who having *patiently waited the fortunate hour named by the astrologers*, receive the gushing forth of the stream with shouts of joy, accompanied by songs, music, and loud expressions of the anxious desire that prosperity may attend it."

In the article of manure, I think it is well to bear in mind that four-fifths even of *solid* ordinary manures is water; while in guano and bones the proportion is almost reversed. This shows the necessity of excluding the water from the dung-pit, both top and bottom. If four out of five cart-loads or barrow-loads of manure be merely water, why needlessly add to the charge by carrying out perhaps five out of six parts of water? Besides, nearly all the poisonous gases are the compounds of hydrogen, arising from the decomposition of water. The cinders from the fire, *if well riddled*, give the best deodorizer available near at hand, from a charred midden near a house; but they make matters worse if the rain gets in.

So now, Semiramis, "cœtilibus muris," and D. Beaton, railways, Cambyses' vein, and the Arabian King, the Shah of Persia, and sanatory reforms, be they wet or dry, have come to an end. VIDGYOR.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

CHRYSANTHEMUM FAILURES (*L. C.*).—After the various clear instructions given we hardly know what to do more, especially as you perceive where your error lies. Stopping them until August will never do. If you had allowed the shoots to grow from the beginning of July you would have had flowers, if from June they would have been finer; a certain time must be given the shoots to organise and mature flower-buds. The cuttings which you took in August failed from a similar cause: if you had laid the points of the shoots you would likely have succeeded, but the buds not being formed in August, and the check given by removing the cuttings from their parent plant, rendered them unable to form flower-buds, which they might have done if left alone. We can hardly advise you for the best respecting your plants now; one thing is certain, they will not give you any flowers until next autumn, so that keeping them in that expectation is useless. After being sheltered in any warm corner and protected from frost, cut down in March, and planted out, they would succeed well against palings or walls. The smallest plant might, after cutting down, be again repotted—the shoots stopped if necessary, so as to give you, by April, as many shoots as you would require—and then you might shift and water well, when, without more stopping, you will have fine large plants that will set their buds early and flower splendidly; or you may take suckers from larger pots at the same time, or merely cuttings, but if the latter, and in April, you must lose no time, and omit no encouragement; and even then you will not obtain bloom so early as from your young plants.

LILIES OF THE VALLEY (*Ibid*).—If in the greenhouse, there was no necessity for covering them with eight inches of coal ashes. Force them as soon as you find the pots supplied with roots: see a paper a fortnight ago. A little light manure, such as leaf-mould, sprinkled over them out of doors will do them good.

COW-DUNG AND SOOT FOR ROSE-TREES (*Ibid*).—Capital stuff! You are lucky to have it. Better point it into the ground, or your next neighbour's garden will receive benefit as well as your own.

ROOT-BUDDING FOR ROSES (*D. M.*).—Can any of our readers give us information on this practice, for we never tried it; but in bad weather, in the sheds, have *grafted* scions of well ripened wood upon largish but fresh pieces of roots. All that was necessary was to slice a piece off the side of the root, a corresponding piece off the scion, binding the scion and root together with a piece of matting, planting them so as to cover root and scion too, with the exception of a bud or so of the latter. Many failed, but many also did very well.

FLOWER-GARDEN (*E. and M.*).—The plan is very good indeed, and that way of grouping the beds new to us. The proposed planting is also judicious, but instead of planting "mixed plants" in the middle of the four beds we would plant them at the inner ends, and remove what is intended there to the middle, and for this reason, that the outside ends would agree better with the middle in the uniformity of growth, which no kind of mixed planting can do. The effect would be the same as you propose—4 and 6; blue and white *Lobelias* must be of the *erinoide* breed, and therefore too dwarf for the plan and size of the beds; we would abandon that plan. Remove the two *Lobelias* for bordering a couple of the mixed ends, and use *Lobelia racemosa* or *Salvia Chamædrioides* for 4, and *White Perfection verbena* for 8, which are your own colours with more suitable plants. The mixtures will include *China-asters, Stocks, Indian pinks, Mimuluses, Viscaria occulata, Œnotheras, Penstemons*, or, indeed, such as come readiest to hand, and keep in flower a couple of months or more. The first week in April is time enough to sow such hardy annuals as you require.

ROSES AND FUCHSIAS (*A New Beginner*).—As far as the pruning of the newly planted roses is concerned, Bourbons and hybrid perpetuals must be cut the same way, that is, close pruned; and you may cut them now, or as soon as you like. Bourbons are a particular race, but they flower as long as the hybrid perpetuals if they are of the right sorts. Your *fuchsias*, now growing, must soon be shook out of the old soil, their roots well trimmed, and then be repotted in fresh soil and be watered.

ERROR (*B. B.*).—Our reply to you at page 247 should be thus corrected:—"The super is placed *inside* the rim; the adapter must be of thin mahogany, and twelve inches square."

CAPS ON COTTAGE HIVES (*James C. Roberts*).—Let the caps be placed upon the stock-hives the first week in May (but only upon the *very strongest* stocks), put two or three small pieces of clean empty comb at the top of each cap, and see that the aperture in the top of the stock-hive is not less than three or four inches in diameter. The guide-combs, as they are called, are easily fixed in the caps by warming them a little,

and sticking them on whilst warm; pieces of an inch long, and half an inch deep, will be quite large enough.

WALKS (*G. Porcher*).—The best chalk marl is not strong enough to make a good concrete walk. It would make a tolerably good bottom layer of two or three inches, with rough stones, for a four or six-inch walk, and so lessen the expense where chalk is not at hand; but *lime* is by far the cheapest for making the concrete, as one measure of it will do to twelve measures of rough gravel.

SEEDS (*A. D.*).—We cannot recognise the seeds from Valparaiso, but we shall sow them, and let you hear if we can make out what the plants are.

FLOWER-GARDEN (*A Novice*).—Your garden in front of the greenhouse looks well, but it is not in the geometric style as you said. 1 is the best for the Scarlet Geraniums; 7 for the Heliotrope; 4, Fuchsia globulosa or Lobelia bicolor, with a Fuchsia in the centre; 8 and 9, Scarlet Verbenas; 5, Cupheas, Strigilosa in the middle, and edged with platycentra; 6, strong Pink Verbenas; 10 or 11, or both, with Salvia fulgens; 2 and 3, mixed Petunias; Pansies round 4, and Lobelia fulgens would do for *the centre of 4 instead of a fuchsia*.

FLOWER-GARDEN (*L. M. N.*).—Your plan does very well for the situation, and "your ideas" are quite in conformity with the fashion of the day. There is no good real lilac verbena for a bed. You could, perhaps, gather a nosegay of lilac ones; but when spread out in a bed, what with the leaves, grass, or gravel, the colour is neutralized. You ought to have the Duchess of Northumberland, or Miller's Favourite Verbena for 5. The rest just as you propose; but for 9, Lobelia racemosa would be a great improvement, or gracilis, only that it will not last quite so long in the autumn. 6 *is Macrocarpa, not Eccremocarpa*.

HEATHS, LARGE, FLOWERING IN JULY (*Sigma*).—Erica aitoniania, ampullacea, bergiana, arenthioides, depressa, Cavendishii, Ewenana, infundibuliformis, Irugana, mirabilis, vestita coccinea, ventricosa coccinea minor. Averaging 2s. each.

TWELVE GOOD GREENHOUSE PLANTS (*Ibid*).—Acrophyllum venosum, Aotus gracillimus, Aphelexis macrantha purpurea, Boronia serrulata, Chironia pinnata, C. glutinosa, Chorozema nana, Crowea saligna, Eriostemon intermedium, E. scabrum, Hovea celsii, Polygala oppositifolia.

GREENHOUSE CREEPERS SUITABLE FOR A TRELLIS (*Ibid*).—Gompholobium polymorphum, Rhyncospermum jasminioides. We trust these selections will suit you, in addition to those you already have.

VARIOUS (*E. W., Hoxton*).—The season for pruning *Catalpa syringæfolia* is the middle of March. *Ivy* may be planted any time from September till April. Cuttings will root, but they are two or three years before they make *much* growth. Your question about *Arums* is a wide one. There are plants of that tribe found in the hottest, temperate, and coldest parts of the globe. If, as we suspect, you mean the large white-flowered Arum (*Calla æthiopica*), a window plant, you must procure roots (as it seldom produces perfect seeds), and pot them in March. *Rosa indica*, a China rose, will grow and flower in your ordinary garden if you make the border dry, and mix leaf-mould with the soil freely, protecting the young shoots with fern tied loosely round the young ones.

INSTRUCTIONS IN GARDENING (*Secutator*).—We can assure you that there is no royal road to a knowledge of gardening. A lad to acquire such knowledge must be employed in a garden where he can participate in and observe all the requisite operations, from the most difficult departments of forcing down to the mere hard labour of the kitchen beds. It is thus, and only thus, that he can acquire a knowledge of the practical part of his business. Let him have a general knowledge of botany, chemistry, and geometric drawing, and then all that is taught in books,—every new plant under cultivation imparts knowledge which he knows how to benefit by in actual gardening. Practice with science enables the cultivation of the soil to be carried to its greatest perfection, but practice is the first power to be acquired. Your hint, however, shall be kept in view.

ORNAMENTAL GARDENING (*Sigma*).—"There is one department connected with gardening on which you have not yet treated—that which relates to the embellishing the grounds of a mansion on a large scale, as regards the shrubberies, the woods, and park. The view from a house is one of the most important considerations connected with it. The house should be adapted to the ground which lies around it, and the ground to the house. I have often thought, that were I ever to build a mansion, or a cottage, I should like to employ a scientific gardener and an architect together, in order that they might select the best spot and the best style of building for the situation, or for what the situation might be made. I believe the late Mr. Loudon undertook to build a house and lay out the grounds about it himself: has his mantle not fallen on any other shoulders? If a man wants to erect a nice house, and to make the most of the adjacent land, he had best proceed on a good plan from the first, in respect to both his objects. I should like to hear you discuss this subject. Connected with it in some degree is another point I would fain seek counsel on. Suppose a humble cottager wants to lay out his acre, or two or three acres, immediately around his house, to the greatest advantage—just a lawn, a small shrubbery or two, and a flower and kitchen-garden,—this would not be a matter sufficiently grand to call in a Loudon about; but a cottager so circumstanced might be very willing to give any scientific man five or ten pounds for counsel bestowed on such a plot of ground, merely to gratify his taste, leaving profit out of the consideration. Now, where is he to seek such counsel? Probably you would not like to recommend any one by name, but you might give a hint as to the proper track in which to seek for such aid." It is quite true, that we have avoided entering either into dissertations upon the embellishments desirable for grounds around a mansion, as well as into offering plans for villa gardens, and for the cogent reason, that general rules are to be found in every book upon landscape gardening, and specific plans can only be recommended after a survey of the places requiring them. We have no doubt that the mantle of Loudon has fallen upon other shoulders, and that there are many who are very capable of furnishing the aid you require; indeed, we have seen their advertisements, and our columns are open to them.

ALLOTMENT GROUND (*Ibid*).—Two acres well managed as ground to grow food for a cow and pigs, ought to afford profitable employment for your man at twelve shillings per week.

DRESSING FOR PASTURE LAND (*J. E. B.*).—How can we tell you "what is the proper and cheapest dressing for your pasture," unacquainted as we are with the soil and what manures you can procure. There is generally nothing better than decomposed stable manure, with a little gypsum and dissolved bones. Of your *wood ashes*, you may apply forty or fifty bushels per acre in March, sowing them broadcast over the field. They are an excellent top-dressing for grass land.

AGERATUM MEXICANUM (*Lancelot*).—We repeat, there is no white *variety* of this. The list you mention as being in THE COTTAGE GARDENER'S DICTIONARY, are of *species* of which three bear white flowers. We are not aware that any of these are used for bedding out. In planting *a round bed of Geraniums*, the best mode is to plant in circles, beginning at the top. *Onions* ought *not* to be grown on the same plot every year. It is useless for you to send *a plan* of your garden before next September. Answers to your other queries next week. You can have the copy of THE COTTAGE GARDENER you name, by sending *four* postage stamps, as all the stamped copies are sold.

POTATO PLANTING (*Cartoffel—Jersey*).—Your grass field dug up last April, cropped with parsnips, and now trenched, may be planted with potatoes without any additional manure. We should plant immediately, but as the ground is heavy, the very worst for potatoes, we should dig the ground into ridges, and plant along their top.

BOKHARA CLOVER (*W. C. G.*).—It is a biennial, and, in favourable soils and seasons, reaches the second year to the height of ten feet or more. It may be cut monthly, both the first and second year, as soon as it is eighteen inches high; but even then it is coarse, and not relished by cattle of any kind. Sow thinly in drills in the spring, two feet apart, and keep the hoe going between the rows. We do not know the direction of the manufacturer of the *Compound Carbonised Animal Measure*, but our columns are open to his advertisements. *Peat charcoal* is sold in London at about £7 per ton. Do not manure your *potatoes*; plant them on a plot already fertile.

CARROTS (*Cannidicus*).—If you trench your light soil two spades deep, and turn in a little stable manure with the bottom spit, you will probably obtain a good crop. Sow the Long Horn carrot, if you require them for table use; or the Altringham, if you require them large and for sale. Sow in drills eight inches apart for the Horn variety, and twelve inches apart for the Altringham. See what is said about them in the next number of *The Cottage Gardener's Dictionary*.

BEGONIA FUCHSIOIDES (*A Subscriber*).—You will find full directions for the culture of this and other species of Begonia, at page 172 of our last volume.

POULTRY AND BEES (*A Subscriber, Cottesmore*).—Buy *Richardson on Poultry*, a new edition just publishing, and *Payne's Bee-Keeper's Guide*.

RUSTIC BASKETS (*Anna Maria*).—We have no drawings of these, but we will look out for some.

KOHL-RUBI (*H. Badrocke*).—See an editorial to-day.

TRISECTING AN ACUTE ANGLE (*W. Burgess*).—We know of no reward for doing this.

LAWN (*E. S. M.*).—It is useless for you to fight against the worms; you may destroy a few, but their places will soon be supplied by others. Rolling frequently, sowing lime rubbish as you propose, and a mixture of the grasses as recommended at page 234, will be your best mode of improvement. Your only mode of getting rid of *Couch grass* and *Convolvulus*, is to have the ground carefully forked over, employing boys to watch the fork, and to pick out every fragment they see it throws out of the underground runners, usually, but erroneously, called roots. However careful they may be, fragments will remain, and each piece will produce a plant; therefore, grow a crop in drills, with wide intervals, that will permit war to be waged against them with the hoe. It is only by patiently pursuing this course for two or three years, that you can subdue these enemies in your neglected soil. Your *old walls*, full of nail holes, we should have pointed all over with good mortar, and when this is quite dry painted over with coal tar. This will destroy all the vermin. Draining, liming, and frequent hoeing, are the best subduers of slugs. Your *old pear-trees* we should, by degrees, graft with better sorts. Scrape off the moss from their barks, and scrub them with brine.

FORCING SEA-KALE AND MUSHROOMS (*J. C.*).—The temperature of your cellar, 45°, is not high enough. 60° will not be too hot, and you may use a stove for such a purpose without any injury. This is all you need. Do not remove *strawberry plants* merely because barren one year. If they are so a second, then destroy them.

POULTRY FEEDING (*A Poultry Fancier*).—If your poultry have ground to roam over, they require a handful of corn to three fowls twice a day in

er, and three times in winter; but they ought also to have at both s a little boiled potatoes, turnips, cabbages, &c., and other kitchen

N IN 1850.—R. Denison, Esq., has favoured us with the following of the quantity of rain that fell at Middleton, near Beverley, in the 1850:—January, 3.30 in.; February, 1.25 in.; March, 0.80 in.; 2.59 in.; May, 1.40 in.; June, 2.04 in.; July, 3.42 in.; August, a.; September, 1.67 in.; October, 4.03 in.; November, 2.07 in.; ber, 0.85 in. Total, 24.99 in. In 1847, 28.04 in., fell; in 1848, in.; and in 1849, 29.61 in.

CESSION OF BROCOLI (*A Subscriber from the First*).—You will very good article on this subject in *The Cottage Gardeners' Dic-y*. We have had no difficulty in obtaining a supply from October ıy, by sowing as follows:—*Early Purple Cape* and *Granges Early lower Brocoli*, the second week in April and the first week in they will yield heads during October and until mid-December. *-close-headed*, first week in April, to produce heads from November end of January. *Dwarf Brown*, second week in April, for heading February to end of April. *Sulphur* and *Spring White*, in second of April, for production in April and May following.

IBBING IN BROCOLI (*Ibid*).—This you will also find fully discussed e *Cottage Gardeners' Dictionary*, under the head AMBURY. Re-l watering certainly does not cause it, but rather tends to check it. kling soot thickly, or gas lime thinly over the seed-beds, and on urface among the plants when finally set out, are good preventives. prevent the fly depositing her eggs in the young underground part stem. Those eggs produce grubs which are the cause of the e.

AS (*J. S. G.*).—You have only room for three sowings, and you ask name the varieties and times for sowing. As your space is so d it is useless to think of growing either the very early varieties, are all comparatively unproductive and tasteless; or the very tall eas. We should select one productive variety, and grow no other. Scimetar is as good as any for your purpose; sow at intervals of weeks in March, April, and May.

LPHUR FUMIGATOR (*An Early Subscriber*).—There is a machine asting with sulphur, but none for fumigating. As you have no hot-pipes in your house, support a saucepan of boiling water on so high as to admit a small oil lamp underneath to keep it hot; piece of tin or zinc over the mouth of the saucepan, and sprinkle flowers of sulphur on this.

RACLEUM GIGANTEUM.—Tastes vary as to this plant. The editor *Durham Advertiser* says:—"This is the proper season for sowing eds of that magnificent herbaceous plant, Heracleum giganteum, luced by Messrs. Hardy and Son, of Maldon, and which has been so y recommended by Mrs. Loudon, and also by Mr. Thomas Moore, stinguished botanist, Curator of the Chelsea Botanic Garden, and of the editors of the *Gardener's Magazine of Botany*. For bold ry this is one of the finest plants that can be grown, and in a moist ion in a garden its appearance is described as magnificent. We plant sent in the spring from a friend in the south, and though only ll seedling, it made leaves during the summer measuring eighteen s in diameter. We have no doubt, from what we have seen of the , that everything said of its beauty will be fully realized when grown rly; and as it may be procured for a few pence, we think it a very ible plant to be grown in ornamental places, and also in small ns, where many suitable places for it may be found."

SPER, RED-LEAVED IN AUTUMN (*A Subscriber*).—This, which saw against houses in various places during your October tour, have been the Virginian Creeper (*Ampelopsis hederacea*).

RLIEST BEE-FLOWER (*S. J. R.*).—The plant you enclosed as being rom which "bees get their first harvests in woody situations," is Dog's Mercury (*Mercurialis perennis*). It is poisonous to men and upeds.

CALENDAR FOR FEBRUARY.

ORCHID HOUSE.

t, give a small portion during the middle of sunny days. BASKETS, s in, may now have a good steeping, by taking them down and ng them in tepid water, just up to the pseudo-bulbs, and whilst they the water look out for wood-lice and other insects, which the water orce up to the surface, and may then be easily destroyed. Let the s remain in the water till the compost is completely and thoroughly d. HEAT: the temperature of the houses may now be considerably ased, as numbers of the plants will be growing. The warmer house g the day may be kept up to 70°, and the cooler, or Mexican, house be allowed to rise to 60°. POTTING, continue to all such as may be ng into growth. WATER, give moderately to growing plants in the part of the day. STEAM, cause by wetting the pipes or flues ing and evening. SYRINGE blocks every morning, and keep the s wetted in the Indian house when the sun shines. T. APPLEBY.

PLANT STOVE.

s may now be given freely in mild or sunny weather, taking care that old draught does not blow directly over the plants. Many plants will require POTTING; take care to have the several composts brought in r and air; have also a quantity of broken pots of various sizes ready. In removing the plants to pot, do not expose them to the cold air out of doors. HEAT may now be increased five degrees, and more water given to the plants that are growing. Pot another batch of *Achimenes*, *Gesneras*, and *Gloxinias*. Prepare a pit for *ginger*, if required in quantity. Also pot the earlier flowering kinds of *Amaryllids*. Put to rest *Amaryllis aulica*, and *Gesnera zebrina*. WATER, give freely to fast-growing plants, and apply it in the shape of moisture in the air during sunny weather. Let the stages, walls, walks, and glass, be all thoroughly *cleaned* whilst the potting is going on, so that the plants may have a sweet clean habitation to come into after they have had a regular good potting, and cleansing themselves. Prepare a hotbed for *cuttings*, *seedlings*, *Ixoras*, *Gardenias*, and other *hard wooded plants* that require a stimulus to grow them freely early in spring. T. APPLEBY.

FLORISTS' FLOWERS.

AURICULAS AND POLYANTHUSES will now begin to grow again, and should have a little more water given them, but as much air as possible, to counteract damp. Protect them from sudden frosts. CARNATIONS AND PICOTEES will also require freely watering, to keep them in good health and vigour. If kept too dry the roots will perish. DAHLIA roots examine, and clear away all dead ones. Towards the end of the month a few of the newest may be potted and placed in heat to grow, in order to obtain cuttings from. Older kinds may remain in quietness till early next month, unless they are very scarce. PANSIES to flower in pots may now be potted for that purpose, and kept under glass in a cold frame or pit. RANUNCULUSES, plant in the early part of the month; shelter continue to BULBS IN BEDS, protecting them from cutting winds, frost, and heavy showers of snow or rain. ROSES may yet be planted. T. APPLEBY.

GREENHOUSE.

AIR, admit freely among hard-wooded plants, such as Fricas, Epacris, Dioscma, &c., when the atmosphere is clear, and the outside temperature from 35° to 40°. In damp, foggy, or frosty weather, it is better to use little firing, and keep the house more close, unless you have the means of heating, and so far drying, the air before it is admitted—the drying, of course, to take place only when the air is loaded with moisture. When the fog gets into the house, light a little fire and give air, and it will soon be dispersed. All these plants will now want more water, but do not give it in dribblets; after doing it thoroughly, wait patiently until the soil is getting dry. AZALEAS and CAMELLIAS, place those swelling and bursting their buds in the warmest end of the house, and you may remove them to the coldest end when in bloom. Supply such rather liberally with water. Those to be retarded, keep as cool as possible, and not so moist. BULBS, CINERARIAS, and PRIMULAS, in flower, assist with manure-water; the double *Chinese Primula* give a warm corner, as it is (especially the white) a splendid object when well grown. *Forsythia viridissima*, *Deutzia scabra*, and *Weigelia rosea*, will yield their blossoms during this and the following month if slightly forced. Forced hardy shrubs keep at the warmest end of the house at first. *Begonia obliqua* makes a fine conservatory plant in winter, if the night temperature is seldom below 45°. CALCEOLARIAS and GERANIUMS, keep at the best place for light and heat. All these soft-wooded plants require more heat than the hard-wooded ones; the former shift as necessary. The forwardest of the latter, stopped and shifted before Christmas, tie out and train. Place in flowering-pots those stopped some time ago, and now breaking; and stop more young plants for succession, to be shifted when the buds have broken again. *Franciscea latifolia*, and *uniflora*, do well in a conservatory at this season, if they had previously received a little extra heat, after being allowed to become deciduous in the beginning of winter, the wood being well-perfected previously. FUCHSIAS, start some favourite kinds, if you can, in a nice sweet hotbed, as at this season they stand heat well. Cut them well down, and thin the shoots afterwards to as many stems as you may require. The young shoots taken off, treated as cuttings in the hotbed, under a hand-light, or shaded, will make choice summer and autumn plants. Repot those for the greenhouse by the end of the month, and prune back freely; those intended for cottage windows, had better remain in their winter quarters for another month, keeping them rather dry, and as cool as possible, so that more room at present may be afforded to other plants. The same HOTBED would do for *seeds*, *cuttings*, &c.; and also for starting some *Achimenes*, *Gesneras*, and *Gloxinias*—the two former either in the pots in which they grew, or by removing the tubers, and placing them in pans with light earth, until they grow a little; the latter either in their late pots before they spring, or, what will do as well, in fresh pots and soil, so that, whenever they start, they take hold of the fresh material. For FIRES, PROTECTION, DRESSING, and CLEANING, see last month. *Insects* will now begin to be busy, and the best antidotes are sulphur vapour and tobacco fumigation, but, above all, cleanliness and good cultivation. R. FISH.

FLOWER-GARDEN.

ANEMONES, sow; finish planting, b. and e. ANNUALS (Tender), sow in hotbed; admit air to daily; water slightly; cover with mats the glasses at night; sow seeds of blue and white *Campanula carpatica* in heat, for autumn-flowering, e.; pot old plants of each, and put in heat for cuttings, b.; sow *Nemophila*, and other *Californian annuals*, to flower after autumn sown ones; (Hardy), sow in borders, e; for early blowing, sow in pots in a hothouse. AURICULAS, dress, and attend carefully those under glass, as the buds appear. BIENNIALS (Hardy), sow, e. BULBS, finish planting. CARNATIONS, plant, and shelter from cold winds. DAHLIAS, sow, and place tubers in hotbed, to break buds for slipping. DRESS borders generally. EDGINGS of BOX, &c., may be planted and repaired. (See January.) Cut round the roots of *evergreens* to remove about next July. Evergreens removed last autumn may have liquid manure in fine weather. EVERGREENS, plant in mild weather, e. GRASS, roll and sweep weekly. GRAVEL, roll, and weed in dry weather, weekly, and try the *concrete* system. HEDGES (Deciduous), plant, b.; (Evergreen), plant, e. HYACINTHS, shelter, for they begin to appear. MIGNONETTE, sow in pots, and place in hotbed, or hothouse, and greenhouse, for succession. NEATNESS, attend to every where. PERENNIALS

(Hardy), sow, e.; plant suckers, slips, and partings of roots; (Half-hardy) uncover, if frosts gone. PLANTING of flowering shrubs, complete. POLYANTHUSES, sow; earth-up with rich compost. POTTED SHRUBS, prune, shift, and dress the soil. PRUNING, the later it is done the more it checks the blooming. RANUNCULUSES, finish planting, b. and e. ROSES, manure with cow-dung. SOWING of tree and shrub seeds, complete generally. SUPPORT, with stakes, &c., newly-planted shrubs. TULIPS, shelter as they are now appearing. TURF may be laid, and see that plants are in heat for *cuttings*, such as *Lobelias*, *Verbenas*, &c.

Climbers, such as honeysuckles and jasmines, should be pruned and trained in the early days of the month. *Reduce* to moderate-sized patches such plants as phloxes, asters, veronicas, &c., otherwise they will occupy too much space, injure their neighbours, and harbour vermin. *Herbaceous plants* should be planted out from nursery-beds into the borders without delay. *Half-hardy* shrubs, &c., may have their shelters partially removed, closing them up again at night, according to the mildness or inclemency of the season. D. BEATON.

ORCHARD.

APPLES (wall and espalier), finish pruning, b.; plant; sow for stocks. APRICOTS, finish pruning and protect carefully, b.; plant. BERBERRIES, plant. BLOSSOMS of early wall fruit, shelter in frosty and windy weather, and retard. CHERRIES, finish pruning and training; plant; graft, e. CHESTNUTS, plant and sow. CURRANTS, finish pruning, b.; plant. CUTTINGS, plant, of gooseberries, currants, figs, filberts, mulberries, vines, &c. DRESS and fork over the earth of the borders, &c. FILBERTS, plant, hang male catkins, &c. GOOSEBERRIES, finish pruning, b.; plant. GRAFTING, commence, if mild, e. SCIONS, collect ready for use. LAYERS, make of figs, vines, filberts, mulberries, and muscle plums, the last for stocks. MANURES, apply where required. MEDLARS, plant. MOSS, on trees, destroy with brine or urine. (See January.) MULBERRIES, plant. NECTARINES, finish pruning, b. ORCHARD TREES, finish dressing. PEACHES, finish pruning, b. PEARS, sow for stocks, &c. (wall and espalier); finish pruning; graft, e. PLANTING, generally complete, e. PLUMS (wall and espalier), finish pruning; plant; graft, e. PRUNING, finish generally. QUINCES, plant. RASPBERRIES, finish pruning, b.; plant; dig between and remove suckers. SERVICES, plant. STANDARDS, finish pruning. STRAWBERRIES, clear and spring dress, and plant in moist weather, e. SUCKERS, for stocks, plant. TRENCH ground for planting. VINES may still be pruned, b.; cuttings plant. WALNUTS, plant and sow.

In collecting *scions* for grafting, remember that the principle is to cut them before the sap begins to circulate. They should be kept in a cellar, or a cool damp place out of doors, until the sap in the stocks, for which they are destined, is in motion. R. ERRINGTON.

FORCING STOVE.

AIR, admit freely when weather permits. BOTTOM-HEAT, attend to (See January). CHERRIES, in blossom, shade when sun is bright; a thick net answers well; disbud as required; day temperature 60° maximum; night 45°; keep a moist air. EARTH of borders, &c., stir occasionally. FIGS, when in leaf, require a day temperature about 60°. HEAT, must advance with light. KIDNEY BEANS, provide successions; use richer and stronger soil as the day lengthens (See January). LABELS, renew, where required. LEAVES, keep cleaned: decayed and weeds clear away constantly. LIQUID-MANURE, apply to the roots of fruit-trees in forcing, if dry. PEACHES, and other fruits in blossom, should not be syringed; disbud; thin when too thick, and as large as peas; day temperature 60; night 55°. PINES, remove from bark-bed to pots; and generally regulate. SECURE ATMOSPHERIC MOISTURE. STRAWBERRIES, in pots, introduce for succession; a slight bottom-heat is useful; see that those in reserve are not injured by frost. SMALL SALADING, sow in boxes. THERMOMETER, for most stove-plants, may be at 70°, during mid-day, if bright. TOBACCO, give fumigations weekly, or oftener, if insects appear. VINES, treat as in January; do not syringe whilst in blossom; thin berries; day temperature 70°; night 60°. WATER, give more freely than last month; keep in open pans, over pipes or flues, constantly. WATCH sedulously for the green fly and red spider; against the latter, sulphur and moisture are the best preventives, as well as cure.
R. ERRINGTON.

KITCHEN-GARDEN.

ARTICHOKES, defend from frost. ASPARAGUS, plant in hotbed, and attend to that forcing. BALM, plant. BEANS, plant; earth-up, and transplant from frames, e. BEETS, sow a little for early use; plant for seed, and dig up for storing any left in the bed. BORECOLE, sow, e. BROCOLI, sow, e. BURNET, sow or plant, e. CABBAGES, plant; sow; and plant for seed. CARROTS, sow in a hotbed, b., to draw young; plant for seed, e. CAULIFLOWERS, attend to, airing, earth-stirring, removing all decayed leaves and slugs; plant out winter standing should the weather be open and mild, and attend to spring-sown crops (see last month); sow, m.; prick out. CELERY, attend to earthing-up, protection, &c.; leave for seed, and sow in hotbed, e. CHERVIL, sow. CLARY, sow, e. COMPOSTS, prepare and turn over. CORIANDER, sow. CORN SALAD, sow. CUCUMBERS, attend to those forcing; prick and plant out; and sow in hotbeds. DILL, sow, m. DUNG, prepare for hotbeds. EARTHING-UP, perform when necessary. ENDIVE, still protect from wet and severe weather. FENNEL, sow or plant. GARLIC, plant. HORSERADISH, plant. JERUSALEM ARTICHOKES, plant. KIDNEY BEANS, sow in hotbed, &c. Keep a good supply of EARTHS in the dry for immediate use. LEEKS, plant for seed; sow, e. LETTUCES, plant out from frames, &c., of the winter standing, towards the end of the month, and sow in the open border. If short of plants sow in frames on a gentle hotbed at the beginning of the month. LIQUORICE, plant and dig up. MELONS, plant out for early crops; sow and pot off; attend to this sort of work on a kind calm afternoon just before shutting-up time. till next month; clean winter crop; (Potato), plant. PARSNIPS, take MINT, force, in hotbed; plant. MUSHROOM-BEDS, attend to; make day temperature 60° to 65°. MUSTARD and CRESS, sow, e. ONIONS, sow main crop, m., if so. light and situation warm, otherwise defer this up; plant or leave for seed, and sow towards the middle of the month in particular, in light soils. PARSLEY, sow. PEAS, sowings may be made both of early and second on the same day, where the soil works well, as the one will be found good succession to the other at picking time; also to suit some unfavourable situations it is well to sow in frames in small pots, or in sods of turf, which is by some thought best, to plant out when a good season offers; also attend to sticking, earthing-up, and protecting other forward crops. PENNYROYAL, plant, e. POTATOES, plant in hotbed of any favourite early kinds; this may be done from the first to the end of the month; also plant out during this month all the main crops if the soil will admit of it, and plant whole sets in preference to cut ones. RADISHES, attend to (see January), and sow in succession either in border or hotbed. RAPE (for saladding), sow; (Edible-rooted), sow. RHUBARB, sow in large pans, or open warm border, and attend to that forcing, either in-doors, or cover up with pots or tubs and fermenting materials for future transplanting. SAGE and SAVORY, plant, e. SALSAFY, sow, e., in small quantity, for early use. SAVOYS, sow, m. and e. SCORZONERA, sow, e., in small quantity, for early use. SEA-KALE, attend to that forcing; cover up in succession. SHALOTS, plant. SKIRRETS, sow, e. SPINACH, weed; sow, m. SORRELS, sow and plant, e. TANSY, THYME, and TARRAGON, plant, e. TURNIPS, plant for seed; sow, e. VACANT GROUND, dig; weed, &c.

In sowing *Radishes* this month, if a sheltered south border is selected, and the surface is covered with ferns, reeds, or straw, the crop will be almost as early as that from seed sown in frames. *Garlic* and *Shalots*, being very liable to decay if excessive wet weather occurs, should be fixed on well-drained ground, on the top of ridges, and be manured with charred vegetable refuse. Smooth the surface of the ridge, scatter over it some charred refuse and a little lime, and then merely stick in the end of the bulb. In light soils, plant in November or October, or even at this time. *Spinach* in drills may be advantageouly sown now, and at all times between every two rows of Peas. The ground is thus economized, and the shade from the peas continues the spinach longer in a state fit for table use.

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WEEKLY CALENDAR.

FEBRUARY 6—12, 1851.	Weather near London in 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year
	Barometer.	Thermo.	Wind.	Rain in In.						
Butcher's Broom flowers.	29.250—28.911	46—32	N.W.	—	34 a. 7	55 a. 4	10 27	5	14 23	37
Wild Swan goes.	29.670—29.454	46—31	W.	—	32	57	11 33	6	14 26	38
White-headed Smew goes.	29.722—29.675	51—39	W.	—	30	59	morn.	7	14 29	39
5 Sunday after Epiphany.	29.699—29.498	50—35	S.W.	0.10	28	v	0 41	8	14 31	40
Queen Victoria m., 1840.	30.085—29.970	48—31	W.	—	26	3	1 52	9	14 32	41
	29.927—29.412	48—33	S.W.	0.11	25	5	3 4	10	14 33	42
Yellow Bunting sings.	29.404—29.254	45—29	W.	0.04	23	6	4 12	11	14 32	43

e 3rd of February, 1557, "Imprinted at London in Flete Strete ſemple barre, at the ſygne of the hand and starre, by Richard was published *A hundreth good poyntes of husbandrie*," "Set Thomas Tusser, gentleman; servant to the honorable Lord Beaudesert," and having this motto:—

A hundreth good pointes of good husbandry,
maintaineth good household with huswifry.
House keeping and husbandry, if it be good,
must love one another, as cousinnes in blood.
The wife to, must husband as well as the man,
or farewel thy husbandry, doe what thou can.

book, consisting of one hundred quarto pages, only one copy is o exist, and that copy is in the British Museum; but we have onsider it as a bibliographical rarity, but as the first book in which details to us the culture of the soil as practised in this Tusser has left behind him, also, his autobiography in verse; this and his *Five Hundred points of Good Husbandry*, which is nlarged edition of the rare work we have named, we will weave a narrative.

It came to pass, that born I was
Of lineage good, of gentle blood,
In Essex layer, in village fair,
That Rivenhall hight:
Which village lied by Banktree side;
There spend did I mine infancy,
There then my name, in honest fame,
Remained in sight.

n in tradition it remains there no longer; and we question the very name of Tusser is not extinct. The village *hight* Rivenhall is passed through by the high road between Witham redon; but all that savours of Tusser is the "good husbandry" l in its vicinity. That he was of "gentle blood" there is no doubt, or he would not have ventured, in those days of strict and precedence, to have written of his parents, that their "pedio list may see, in herald's book." But Tusser was their younger

And now and then of gentlemen
The younger son is driven to run,
And glad to seek, from creek to creek,
To come by thrift.

ser was one of the number, for his father observing his musical termined that this should be his organ of success.

So out I must, to song be thrust,
Say what I would, do what I could,
His mind was so.

ery early age—"I yet but young"—to be instructed in the art of nging he was sent to the collegiate chapel of Wallingford; and rity of its discipline long lived on his memory, for even in l manhood he exclaimed over its remembrance—

What toused ears, like baited bears!
What bobbed lips, what jerks, what nips!
What bread how stale, what penny ale!

, no sooner had he received the necessary instruction than the ry of his singing powers pointed him out for selection; and he ised, as the despotic custom then prevailed, for the choir of 's, in London.

Then for my voice I must (no choice)
Away of force, like posting horse,
For sundry men had placards then,
Such child to take.

. Paul's he was sent to Eton, becoming there a student "to raightways, the Latin phrase" under Udall, whose severity he es. This was about the year 1534; and as he calls himself then ' it is probable that those biographers are not far from the truth ee the time of his birth near to the year 1515. How long he d at Eton does not appear, but "to London hence, and to ge thence," he records as the course of his removal; and he —

With thanks to thee, O Trinity,
That to thy Hall, so passing all,
I got at last.

, he alleges, but we fear, rather, that love of change which kept ugh life from taking root anywhere, induced him to visit London, ecome a retainer of Lord Paget, but in what capacity he has o record: probably a mere hanger-on, whose powers of song l a welcome guest at table, and for which he was requited "with pound." He tells us that here a life of revelling and dissipation ten years tried," but

When Court 'gan frown, and strife in town,
And lords and knights saw heavy sights,
Then took I wife, and led my life
In Suffolk soil.

These heavy sights were probably the execution of the Earl of Surrey, the arrest of the Duke of Norfolk, and other ferocities which characterized 1547, the year of Henry the Eighth's death. If so, Tusser was about thirty-two at the time of his first marriage; and he then settled at Catiwade, not far from Ipswich, and, as he says, began to acquire a knowledge of farming:—

There was I fain, myself to train,
To learn too long, the farmer's song,
For hope of pelf, like worldly elf,
To moil and toil.

On account of his wife's ill health, he removed to Ipswich—"A town of price, like Paradise;" but it was not health restoring, and the catastrophe is told in the brief line—"There left good wife, this present life;" and he then married a lady of the name of Moon, and settled, or rather paused, at East Dereham, in Norfolk. But it was only for awhile, and then, upon the inapplicable excuse, "That Lord with Lord, could not accord," he flitted to Norwich, where under the patronage of Dr. Salisbury—the "gentle Dean"—he appears to have become once more a chorister. But this was to be for no length of time his biding-place, for disease, or fancied disease, hurried him "From Norwich air, in grea despair;" and as he says, or sings—

From thence so sent, away I went,
With sickness worn, as one forlorn,
To house my head, at Fairsted,
Where whiles I dwelt.

And a short "whiles" was it; for though close to his native place, yet because there were some disagreeables attendant upon the tithing, he adds—

Once rid my hand, of parsonage land,
Thence, by and by, away went I,
To London straight, to hope and wait
For better chance.

In London he appears to have resided for some years, probably as a schoolmaster, and probably, for we have no certainty as to dates, until the year 1574, when the plague appeared within the city, and then—

When gains were gone, and years grew on,
And death did cry, From London fly,
In Cambridge then, I found again,
A resting plot.

That "resting plot" was his old college, Trinity Hall, but whether as tutor or in what capacity is not revealed, but as a tutor it is probable, for he seems to recapitulate his successive vocations in these lines:—

Let serving pains, yield forth her gains,
Let courtly gifts, with wedding shifts,
Help now to live;
Let music win, let stock come in,
Let wisdom carve, let reason serve,
For here I crave, such end to have
As God shall give.

This prayer seems to have been granted, for although he died in London he mentions no other place of removal, though his poetical memoir continued to be printed in the editions of his work which appeared in 1577, 1580, and 1585. We may conclude that he died between the two concluding dates, for he is spoken of as deceased on the title-page of the latter. The historian Stowe tells us that he was buried in the church of St. Mildred, in the Poultry; and this epitaph may be the concluding of his autobiography, for it savours of his rhyme:—

Here Thomas Tusser clad in earth doth lie,
That sometime made The pointes of Husbandrie:
By him, then, learn thou maist; here learn we must,
When all is done we sleep, and turn to dust:
And yet through Christ, to heaven we hope to goe,
Who readeş his bookes shall find his faith was so.

Tusser's "points" are chiefly those which require to be attended to by the farmer for the good management of his crops and live stock; but there are some "points" of gardening mentioned of which we will glean a few, as examples that his horticulture as well as his husbandry was "good." Fruit was then especially prized, for we read that at some unusual season Henry VII. gave two shillings for a red apple—a price equal to ten shillings at the present time: so Tusser directs especial care for the orchard:—

At Christmas be mery, and thanke God of all:
and feast thy pore neighbours, the great with the small.
Yea, al the yeare long haue an eie to the poore:
and God shall sende luck, to kepe open thy doore.

Good fruite and good plenty, doth well in thy loft:
then lay for an orcharde, and cherishe it oft.
The profet is mickell, the pleasure is mutch:
at pleasure with profet few wise men will grutch.

For plantes and for stockes lay afore hand to cast:
but set or remoue them while twelve tide doe last.
Set one from another full twenty fote square:
the better and greater they yerely will bare.

In the course of the volume he gives "a poynte or two of huswifry;" and from thence, as well as from other authorities, it is apparent that the kitchen-garden was considered as specially under the care of the housewife. He says, under this head:—

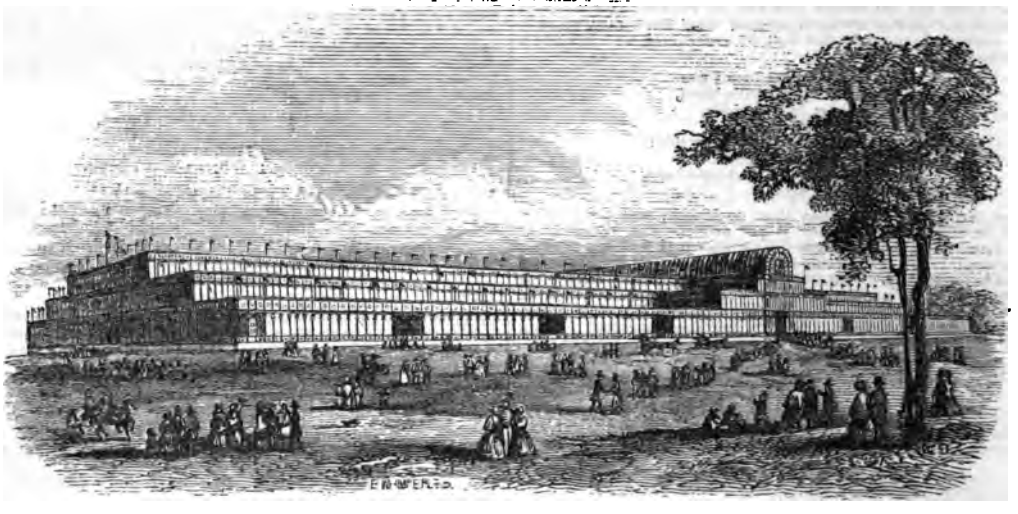
In Marche and in Aprill, from morning to night,
in sowing and setting good huswiues delight.
To have in their garden, or some other plot:
to trim up their house, and to furnish their pot.

Have millons at Mihelmas, parsneps in lent,
in June buttred beans, saueth fish to be spent.
With those and good pottage inough hauing than
thou winnest the heart of thy laboring man.

Of the tenants of the garden and orchard, Tusser enumerates of "Seedes and herbes for the kychen; herbes and rootes for sallets and sawse; herbes and rootes to boyle or to butter; strewing herbes of all sortes; herbes, branches, and flowers for windowes and pots; herbes to still in summer; necessarie herbes to grow in the garden for physik, not reherst before," above one hundred and fifty species. Of fruits, he mentions many kinds of apples, apricoches, bar-berries; bollese, black and white; cherries, red and black; chesnuts, cornet-plums, (Cornelian cherry ?), damisens, white and black; filberts, red and white; gooseberries; grapes, white and red; grene or grass plums, hurtil-berries (Vaccinium vitis-idœa), medlers or merles, mulberries, peaches, white, red, and yellow-fleshed; peres of many kinds; peer plums, black and yellow; quinces, raspes, reisons, (currants?), hazel-nuts, strawberries, red and white; services; wardens, white and red; walnuts, and white plums.

And here we must close this notice of one who may be justly termed the English Columella; for, like him, he wrote practically on the culture of the soil, and, like him, clothed a portion of his instructions with verse. It has been suggested that he would have been more useful if he had written in prose, and so he might to the few, but in that case he would not have been read and remembered by the many. His "points," like Poor Richard's sayings, became proverbs throughout the land, and how popular they were is told by the fact, in those days of few readers and scanty literature, that in twenty-eight years—the time between the book's birth and the author's death—it had run through eight editions. That these tended to improve the culture of the soil of England there can be no doubts, for the rules they contain are sound and practical, and written in verse were learned and repeated by many who had never been taught to read.

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 45.4° and 32.1°, respectively. The greatest heat, 65°, was on the 10th in 1831; and lowest cold, 3° below zero, was on the 11th in 1845. Rain fell on 78 days, and 90 days were fine.



THE GLASS PAVILION IN HYDE PARK.

THE above sketch is a faithful representation of the glass pavilion, in which is to be accomplished this year the great *réunion* of the manufacturing skill and productions of all nations; but faithful as is this sketch, yet it fails, as all pictures fail, in giving an adequate impression of vast extent. We had seen all the pictures of this pavilion, we had seen the ground marked out, we had walked around it whilst in progress, but it was not until we had entered it when completed that we were fully and justly impressed with its magnitude. It is 1848 feet long by 1851 according to, being [illegible] ded. The width [illegible] ght of the principal [illegible] side portion [illegible] he transept [illegible] fee. about 1[illegible] 92,958 square feet additional space enclosed by the building is 33,000,0[illegible] eet. A good mode of realising any amount of [illegible] by comparing it with some enclosure familiar [illegible] therefore our readers will be aided by the fact, that it is longer than either three St. Paul's or Winchester Cathedrals, with that of Carlisle added to the triplicate; and in width it is just twice as wide as Winchester Cathedral, and almost twice the width of St. Paul's. If purchased, the price is £150,000; but if pulled down and returned to the contractors, £79,800.

We have noticed this striking feature of the year on various accounts. It is the invention of one of the best gardeners of the day, and we rejoice in this for the honour of the craft. Mr. Paxton is an able engineer as well as an able horticulturist; and this union of acquirements suggested and enabled him to perfect his design, and it is another evidence of his skill and indomitable perseverance. From the time that he first attracted the Duke of Devonshire's notice in Chiswick Gardens, where he was an assistant, by bringing a glowing cinder for his Grace's cigar, until the present time, the same have been his characteristics, and the Duke has never swerved from the opinion he lately expressed, when he said, "I never knew Mr. Paxton resolve to undertake what he did not fully accomplish."

Not only is the building designed by a gardener, but it will have assembled within it much that is of high interest to gardeners. We know of implements and other structures that are to be exhibited not only demonstrative of the skill of the artizan, but offering great aids to the cultivators of the soil.

Above all, we hope we see in it a permanent structure, and after serving the purposes of the exhibition that it may remain as a winter garden where it now stands. Such an opportunity for so desirable an establishment can never recur; for it has elevation sufficient for the tallest Palms, and it would not be either difficult or expensive to have it divided by glass partitions, so as to have within the temperatures and vegetation of every clime. Nor need the vegetation here be stuck in formal rows of glaring pots, for there is space enough, not only on the ground floor but in the galleries, for the display of artistic arrangement.

When first we heard of the proposed building our memory at once carried us back to a day about twenty-four years ago, when we stood amid the ruins of the Athenæum at Brighton. That building was entirely of iron and glass, enclosed within its circle about an acre, and the prospectus stated that "while it possesses the requisite strength for covering so vast a space, it is delicate enough to admit the light with perfect freedom." This assurance proved fallacious, for the building fell, and involved in its ruin that of its projector, Mr. Phillips. We do not fear that Mr. Paxton's pavilion will fall from a similar cause; but the trial to it will be if a gale of wind occurs when its floors are loaded. Upon this point, however, we do not hazard an opinion; though we do venture to express a fear that the ridge and furrow roofs will very soon cease to be rain proof.

We will conclude by giving an extract from Mr. Paxton's own account of the origin of the design.

When the six eminent architects and engineers were selected as a committee to choose a design, Mr. Paxton says that he had no intention of offering one, for he took for granted that something worthy of the occasion and of the nation would be selected by them. When the time approached for the production of plans there was a discussion in the newspapers as to the design best adapted, and he must say that the first sketch he saw in a number of the "Builder" did not inspire him with any exalted notions, or raise any very splendid expectations of the result. It was not until one morning when he was present with his friend Mr. Ellis, at an early sitting of the House of Commons, that the idea of sending in a design occurred to him. A conversation took place between them with reference to the construction of the new House of Commons, in the course of which he (Mr. Paxton) observed that he was afraid they would also commit a great blunder in the building for the Industrial Exhibition; adding, that he had a notion in his head, and that if he (Mr. Ellis) would accompany him to the Board of Trade he would ascertain whether it was too late to send in a design. He asked the executive committee whether they were so far committed to the plans as to be precluded from receiving another. The reply was, "Certainly not; the specifications will be out in a fortnight, but there is no reason why a clause should not be introduced allowing of the reception of another design." He said, "Well, if you will introduce such a clause I will go home, and in nine days hence I will bring you my plans all complete." No doubt the executive thought him a very conceited fellow, and that what he said was nearer akin to romance than to common sense. Well, this was on Friday, the 11th of June. From London he went to the Menai Straits, to see the third tube of the Britannia-bridge placed, and on his return to Derby he had to attend to some business at the board-room, during which, however, his whole mind was devoted to his project; and whilst the business proceeded he sketched his design on a large piece of blotting paper. He was sorry he had not the original with him, but the fact was, Mrs. Paxton had taken possession of it, and if they were at all anxious to see it, the only possible way of gratifying their desire was by sending for her to the meeting. Having sketched his design on blotting paper, he sat up all night until he had worked it out to his own satisfaction; and by the aid of his friend Mr. Barlow, on the 15th he was enabled to complete the whole of the plans by the Saturday following, on which day he left Rowsley for London. On arriving at the Derby station he met Mr. R. Stephenson, a member of the building committee, who was also on his way to the metropolis. Mr. Stephenson minutely examined the plans, and became thoroughly engrossed with them, until at length he exclaimed that the design was just the thing, and he only wished it had been submitted to the committee in time. Mr. Stephenson, however, laid the plans before the committee, and at first the idea was rather pooh-poohed; but his plans gradually grew in favour, and by publishing the design in the "Illustrated News," and showing the advantage of such an erection over one composed of fifteen millions of bricks and other materials, which would have to be removed at a great loss, the committee did in the end reject the abortion of a child of their own, and unanimously recommended his bantling.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

SPEAR-POINTED-LEAVED POLYGONUM (*Polygonum cuspidatum*).—*Paxton's Flower Garden*, i. 137. *Annales de Gand.*, v. 461.—The name of this genus, *Polygonum*, originated with Linnæus; and the meaning of the word is many-jointed, in allusion to the stems; from *polys*, many; and *gonu*, a joint or knee. *Cuspidatum* is a term applied to leaves which terminate suddenly in a point—a cuspidate or spear-pointed leaf. If the number of species in the genus *Polygonum* had been fixed on for giving it a generic title, the name would be *Protea*, or *Legiona*—for they are vast in number, if not Protean in aspect. In the cool and temperate parts of both hemispheres, Polygonums inhabit waste places, as heaths, mountains, and way-sides, either trailing on the ground or twining among neighbouring plants. Their uses are as various as their aspects, and their celebrity has to be recounted in various ways. The *Fagopyrum esculentum*, Buckwheat, or Brank, was once a *Polygonum*, and now the whole of the genera or families partaking of the same botanical construction, are named in their Natural Order, *Buckwheats* (Polygonaceæ). Properly speaking they are flowerless, or devoid of petals; but the calyx is

often coloured, and passes with common observers for real flowers. Their triangular seed vessel is called a nut in the language of botany, each nut having one kernel or seed. The *Water-pepper* of our own ditches is *Polygonum Hydropiper*, well known as an acrid plant, whose leaves are so much so as to raise blisters on the skin, and if used in the green state is said to be a powerful diuretic. In France and Belgium *Polygonum tinctorium* is cultivated for a dye, and is said to yield a blue little inferior to indigo. The *Snake-weed* of our meadows, *Polygonum bistorta*, in the form of a decoction, makes a good gargle for relaxed sore throats. In India and South America, several species are in use in various ways medicinally; but the greater portion of the numerous species are mere weeds. One of the greatest favourites of them, among cottage gardeners, being the Red Persicaria, *Polygonum persicaria*. They belong to the third order of the eighth class of the Linnæan system, 8-*Octandria* 3-*Trigynia*.

Polygonum cuspidatum is one of the prettiest species known; and though now announced in Belgium as one of Dr. Siebold's novelties, it has been cultivated for some years in the gardens of the London Horticultural Society, growing there in an artificial swamp; to which it was introduced from China as *Houttuynia cordata*. It is, in fact, a Japan plant made known by M. Thunberg in 1820. *Stem*, eight feet high or more, straight, branching, smooth, round, hollow, purple spotted. *Leaves*, broad, oval, transparently red edged, smooth. *Flowers*, in two's and three's, in panicles from the axils of the leaves; they are greenish yellow on red footstalks. It appears in May, but is cut down by the first frosts. Although it grew in a swamp, yet it prefers a dry light soil; and Dr. Siebold relates that he saw it employed in Japan for fixing loose sand, which it did effectually by means of its running roots, which are uninjured by the severest frost. B. J.

THE FRUIT-GARDEN.

PLATFORM PLANTING.—Although some observations were made on this most economic and safe way of planting in an early number of this work, we feel bound to go into farther detail on the subject, and this in time to be of service to spring planters. We do hope that no person will in these times be so unwise as to make what are termed "borders" for fruit-tree planting,—borders—at least, in the old acceptation of the word—which generally involved an amount of expense the trees could never repay, and which in many cases, from being made deep and rich, became a positive injury. Certainly, if any one has a vast amount of fresh or maiden soils come to hand, for which there is no other use, and has a kitchen or fruit-garden of a very inferior staple, he may do well to *generally improve it* in this way; but to fancy that fruits cannot be successfully grown without seriously damaging rich old pastures, by the removal of the turf in such enormous quantities, is a most preposterous idea.

Turfy material, everybody knows, is highly eligible for fruit-trees, but by no means indispensable, inasmuch as organic matter in the shape of tree leaves, straw, or litter of any kind, and even the carpenter's shavings, &c. may be used up for this purpose. Those who live near [illegible]ay procure the very furze and coarse weeds, [illegible]hem up altogether to blend with the soil. We do not affirm that these things blended with the soil will render it equal to loamy turf, but we know that they will constitute a pretty good representative, and will at least serve to eke out a plan which will save our suburban amateurs much expense; for many of these articles are at all times within their reach.

Economy, then, is the basis of the platform mode; and in order to convey an idea of what platform planting means, we may observe, that it signifies so forming a station for any given fruit-tree as that, in the event of any improvement being needed in the soil, about four or five barrows of sound loam shall suffice for any tree; and that this shall be so husbanded in its application as to secure to the fruit-tree a space of ground which shall always belong to the tree, unmolested at all times by the spade, unless for some special purpose connected with the tree itself. Such a space may be about seven feet square: this we have proved to be amply sufficient; but as it frequently happens that on marginal borders the trees are within about three feet of the walk, the form of the excavation for the platform may be a parallelogram. Such is our practice; and the trees on the marginal borders being within three feet of the walk, we allow four feet on each side of the tree lengthwise, thus making a hole of six feet by eight.

Having been during the last week making a line of platforms along a border, in order to plant some apples on Paradise stocks, which are not only of first-rate quality in the dessert, but, what is of equal importance, known to suit the climate, we can scarcely do better than detail our mode of procedure. It so happens that we have access to abundance of loam; but, although such is the case, we still repudiate the idea of a profuse use of it, rather wishing to show forth in practice what we advocate in theory. We have, therefore, gone to work in as economical a way as though we had a town or suburban garden to plant. The soil is a poor and weak sandy loam, containing *very much* red coarse sand. The subsoil at thirty inches in depth is a clean red sand; and from a depth of one foot from the surface the soil merges gradually into this red sand.

Now, here is a point on which we would caution young beginners, some of whom we have known in our day to make sad mistakes. The observations about to be offered apply to other kinds of planting than fruit-trees, but especially to the latter when planted according to the rather close limitations of the platform mode. These remarks may be thus embodied:—Never, if possible, carry *prepared soil* below the level of the regular surface soil—rather increase it above the ground level. We do not wish it to be understood that our platform trees must for ever be confined to the prepared soil; the time will come that their extremities will ramble into the adjoining soil in quest of food; and, such being the case, we would not have them revel in clay, or mere sand, or any other suspicious material, which they may do if the above precaution is not attended to.

To return from this digression, the holes for the platform being marked out, all the best surface soil was excavated on one side, and the remainder on the other, to the depth of about twenty-six inches. On this bottom brickbats or stones were placed, closely, side by side, and a wheelbarrowful of sifted cinders, the size of horse-beans, swept into every crevice. Next, a barrowful of tree leaves were spread on the cinders, and then two barrows of sound or adhesive loam on the leaves—the reason for which proceedings will be given in the sequel. And now two barrows of loam being used up, three more were wheeled beside the excavation, and on the other side two or three barrows of half-rotten leaves or garden rubbish, weeds, &c. This done, the holes were filled up by throwing the whole in alternately, using twice or thrice as much of the ordinary surface soil as the loam, and tossing a little of the half-decayed vegetable matter all through the mass.

In planting the trees, the roots were spread on the surface level, to which height the holes were filled, the surface first being made quite flat, in order that the

fibres might be spread in a horizontal position, or nearly so. The use of organic matter of any kind is sure to occasion a settling of a few inches, and this, of course, must be anticipated by high planting. It is well to use a more generous soil in contact with the roots at planting time, for it promotes a speedy revival of the exhausted powers of the tree; and I have many a time known a twelvemonth gained in this way, which is no despicable affair in these days of quick return. Nothing can exceed the surface of an old melon, cucumber, or mushroom bed for this purpose, combining, as such generally do, loamy soil with thoroughly decomposed manure. And while on this branch of the subject, we may be permitted to tell our more unknowing friends why we sometimes appear to "blow hot and cold,"—sometimes revelling amongst half-decayed manure, sometimes among that which through age, fermentation, and a consequent amount of decomposition, has well-nigh attained the character of soil.

Highly decomposed manurial matters, whether vegetable or animal, being capable of furnishing food to the roots from the moment they are applied; they are, as a consequence, the sooner exhausted. Not so, however, raw or fresh organic matter, such as tree leaves, straw, litter, &c. Thus, whilst the old manure from a cucumber bed of the previous year will by some scourging crops be all but exhausted within a couple of years, leaves, especially from hard-wooded trees, will endure as a slowly acting manure for at least half a dozen years; at least, we have repeatedly turned flakes of them up with the spade from the bottom of huge shrubs which had been planted that time.

Now, through the mass of the soil such slowly acting materials not only prove a service as a constant source of food to the plant, but they, in conjunction with littery materials, preserve elasticity in the mass, which elasticity is well known by our fancy pot-plant growers to indicate the presence of organic matter in any compost, and of course of nutritive powers also, as well as endurance of texture.

Such points, then, established, it may be observed, that it is well to cause most fruit-trees to make a somewhat vigorous start during the first two years, which decomposed matters in contact with the root enables them to do.

To return to our subject. The trees being thus planted, a coating of mulch, composed of half decayed manures, was immediately applied, two inches in thickness, and the work was considered complete.

We hope our more experienced readers submit to these little details for the sake of those who want to begin at the beginning; for we are assured by the character of many queries transmitted to The Cottage Gardener, that a considerable portion of its readers desire to be reminded of mere rudimentary matters.

It must not be understood that the procedures here detailed are precisely fitted for all soils under all circumstances: we have no such presumption. So much depends on the character of the surface soil, and the nature of the locality, that modifications of some kind will become necessary in most situations. In some places the surface soil will be of a harsh and clayey character; here our loam receipt will scarcely be needed, and sandy materials, old lime rubbish, the refuse of the brick bank, the rubbish from old buildings, &c., must be called in to the aid of the planter.

Stubborn soils require much more time to get them in order; and those who have such plots to deal with should, by all means, mark out and excavate their platform stations in the end of October, suffering the soil intended for use in filling the holes, to remain spread for the action of frost during the whole winter. They may in the meantime procure materials ready to blend with it, and seize the first *dry period* in the end of February or beginning of March for filling in the holes, taking care not to do so until the whole becomes very dry; for on this proceeding will depend, in a great degree, the character of the soil as to its free reception and equalisation of moisture so long as the tree remains in it.

In all cases it is well to use raw organic materials liberally in the soil; there is no danger of their producing that pernicious excess of luxuriance which animal manures are but too apt to engender.

It has been much the fashion of late to recommend concrete for the bottom of borders or tree holes; but of this we frankly confess to no very sanguine opinion. We would neither arrest the ascent and interchange of the ground warmth, nor the descent and free escape of accumulating moisture, knowing that any imperishable material placed below the trees in a fragmentary manner will suffice. If our soil was in danger from springs or bottom waters, we would just elevate the mass that much higher. To be fair in the argument, we must confess to inexperience in the use of concrete for such purposes. This subject is by no means exhausted, and we must hope for another chance in due time of taking a broader view of it. R. Errington.

THE FLOWER-GARDEN.

Garden Plans—Planting Flowers in Masses.—A large proportion of those plants we grow in stoves, or hothouses, come from places where the days and nights are of about equal length all the year round; and we are taught to believe that plants go through a very different process in the dark, or during the night, from that which is natural for them to do in open day. Now, if that be true—and there seems to be no great reason to doubt it—how is it, that instead of twelve hours one way and twelve hours a contrary way, these plants, having in our country only six hours, or say eight hours on the average, all the time they make their yearly growth with us, can do so in a proper way under such altered conditions from what is natural to them? Here, then, is a new question for the philosophers, which I believe has not yet been treated of in the English language, if in any other. But my word for it, this subject deserves to be handled by those who can do it in the right way; and I often wish I was one of them; but the subject is too deep for me. I do not know if it is so in the animal kingdom, generally, or not, but I know there are animals which work very differently by the light of the lamp from what is their part to do when the sun shines, and even when he does not shine at all for days and weeks together; and when the nights begin to get out of all proportion to what they are where many of our stove plants come from, these kinds of animals cannot possibly do so much of the lamp work as they are expected to do in open day. Hence the reason why the plans of flower-beds have been postponed till the day and night come to an equilibrium, or equinoctial proportions in favour of the lamp, as was intimated at page 261. Before the subject is dismissed, however, for this part of the season, I want to record some of the impressions received from a perusal of a great number of plans, in various styles, which were sent for criticism.

In the first place, I was very much struck with the progress the system of planting flower-beds in masses of one colour has made, and that, I may almost say, without much aid from garden literature. With the exception of three or four writers, of whom I have been the last to enter the field, nothing that could assist the amateur—except in very general terms—could be met with; and yet I am now in a position to assert, with all confidence, that the system is so fully established, that supposing the whole of us were to turn round and write

against it, we could make very little impression. The next step will be a better way of laying out plans to suit this style; for at present there seems to be no way of displaying a quarter of those plants that are by nature more fitted for this style of gardening than for any other. There is now a widely-spread idea—and a very erroneous one—that particular shapes for the flower-beds are all that are necessary to crown the system with success; whereas, it is their proper sizes and situations in a composition which, at present, are the principal defects. Elegant shapes will certainly add to the effect, but if the beds are either too large or too small for the plants best suited to give the right colour, or the right shade of colour, all the *elegancies* put together will not mend the matter.

In places of limited extent there is no style of laying out beds half so effective as the true geometric style; and yet where people are very fond of flowers it will not encompass all that they think necessary, nor, indeed, all that is necessary for a full display; some groups of beds ought to come in as it were, like Paul Pry, full in view, but not intruding. Single beds, also, with two or three colours are very effective in certain situations in ground of very limited extent, as well as in those of the largest number of acres; and where it can be had, a "mixed border" is also a great luxury, where nothing will come amiss. Geometric figures or beds are endless in shapes, and they should in all cases be repetitions on two or four sides from a given centre. The form of beds arranged in a group not geometric, must be in a great measure guided by the size and figure of the place they occupy, and it is only where the single bed by itself comes in appropriately that full scope can be given to a particular form or outline; and here, if sharp corners or angles be avoided, any one shape is as good as another, provided the owner is satisfied with it, and that it is not held forth as being better than what our neighbours choose for themselves in the same way. Besides what I have been learning for the last dozen years about these things, every one of the points were clearly before me among the different plans I had to look over for the last three months.

There is one very happy idea now carried out in several large establishments, but which I believe first originated in the flower-garden here, though not by the writer, and not a trace of it could be found in all the plans which reached me—it is *the shading system* of planting. Indeed, that way could not be shown in any of the plans before me; shading means more than two shades of any colour. With the exception of scarlet and white flowers, there is not a plant fit for a flower-garden of which one could not find three or four shades, and if not in the same genus, then in one which has the same style of growth, so that the growth as well as the tints agree. And the last step of all is to look out the different shades in plants that grow to different heights, or what I have often said, "heights and colours;" thus, for example, a plant with dark purple flowers, and three feet high, for one bed; the next plant to be only two feet high, and the shade of purple one degree lighter than the last; and the third plant to have the flowers of a still lighter purple, and to be a foot in height, or capable of being trained down to twelve inches. Now, here are three shades of purple, and three heights. *The size of the beds*, to make the most of the colours, ought to be in proportion to the height of the plants; therefore, the beds are of three different sizes. For a make-shift, Geraniums would give three tints of scarlet, and three sizes of growth, but that is the most difficult to produce. Pinks, blues and yellows can be worked as the purples; and where the shades would kill the effect of each other, put white between them, and no harm is done. After trying as many shades as I could find, I have come to the conclusion that three of each are the best, so that they run in three degrees of comparison, like adjectives in our school grammar—good, better, best; tall, taller, tallest; and so on.

One more observation and I have done. With the exception of three or four of the plans, there was a great scarcity of plants. I could see very clearly where most of the ideas for the planting had been got—from THE COTTAGE GARDENER; and there was no want of variety in that quarter; therefore, I conclude that it is easier to learn to plant well, than it is to propagate successfully. But let us not be behind our neighbours in stock *this* season at any rate, as all the world are coming over to see our doings. Besides we never had a better winter season for keeping things from the frost and damp—air on, or lights off, almost every day; and now is an excellent time to get cuttings without having first had to force a young growth. Every young top is in motion, and with a gentle hotbed will make roots almost as fast as we can form them into cuttings; only the very tops should be taken, and if the mother plant is a scarce one, and we want to make the most of it for the next two months, cuttings two inches long are a very extravagant length; short cuts and fast returns is a better plan. To make the best of the season, it is the height of folly and extravagance to waste time in sending letters asking where any plant can be bought; every nurseryman or seed agent in the three kingdoms can get any plant that is on sale in Europe or America, if he chooses; and the commission is likely to pay him for his trouble. If that fails, write to London at once; any of those dealers whose address may be seen in our advertisements, will soon get any plant, if he happens not to have it. Four years since Mr. Appleby sent me a nice plant of *Campanula carpatica alba*, by return of post, and I made two good beds out of it the same season; and the year following I had to put twelve plants into heat about this time, to get a very large stock from, because everybody admired it. Since that time I have never ceased writing about it, and strange to say, not a trace of it could I find this winter among the hundreds of flower-garden beds I examined, nor of the next best plant to it, except in two instances, I mean the *lace bed* of *Saponaria calabrica*, the very finest flower-garden plant in the whole world, as far as we know; a little annual as easily managed as mignonette, and six pennyworth of seeds would plant a circular bed ten feet in diameter. It would be a good plan to sow lots of annuals now, or very soon, on any spare piece of ground. They would all transplant about the beginning of May, when the spring bulbs will fade; and if they were lost altogether the damage would not be great. I do not like the plan of sowing them thus early *where they are to flower*, even if the bed is already full of bulbs; there are so many chances that some of them will be gappy, or not come to much that way, that transplanting is far preferable, when every inch of ground may be covered, and every plant in a bed flower and be done with at the same time. Without a host of annuals no garden can be gay from the middle of May till midsummer;—no, not with "herbaceous plants," and that is really their true prime season. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

A GROUP OF COMPARATIVELY HARDY, EARLY FLOWERING, YELLOW, PEA-BLOSSOMED GREENHOUSE SHRUBS.—I have several times alluded to some of the most prominent and useful of these, such as the *Cytisus* and *Genista*, recommending them both for windows and greenhouses. At all times, but more especially in winter, a yellow colour is necessary to lighten up and show off other

colours in plants to advantage. A number of years ago, a young man then, but now holding a respectable position as a metropolitan nurseryman, who had obtained much experience in the making up of small nosegays, used to say that no "posy" could be perfect, however fine and rare the flowers it contained, unless there were some sprigs of yellow—alike to enliven and blend the others in harmony. Some of our friends hold similar opinions, and despite the rage for novelty are not inclined to turn their backs upon good old useful plants; but they complain, first, that there is a difficulty in obtaining them, owing to many nurserymen not keeping them, and likewise owing to the confusion of the nomenclature, as what is termed a *Cytisus* in one place, will be named a *Genista* in a second, and perhaps a *Spartium* in a third. And, secondly, they complain that when they do obtain a young healthy plant it generally gets sickly, and loses the most of its leaves before the winter arrives.

However scarce such plants may be in some places, they may be obtained in the neighbourhood of London in any quantity. Botanical nomenclature is not my province; the nicety of description is left, and rightly, to practical scientific botanists, though, in the case before us, some striking peculiarity in the genera may be noticed at first sight; and with a little care the plants may be kept in health and luxuriance.

The genera alluded to belong to the Monodelphous (stamens all united in a bundle) group of pea-blossomed leguminous plants; the seeds being produced in legumes like the pea. From a little fanciful resemblance in such pea blossoms to a butterfly, the blossom has been styled *papilionaceous*. On examining such a blossom, in the plants alluded to, the first thing that strikes the attention is the large petal, standing nearly upright, called the *standard*; the two smaller ones on each side denominated *wings*, and the two petals generally smaller still, and so joined that without examination they would often be taken for one, and termed the *keel*, from their less or more striking resemblance to that part of a ship or boat. Now, keeping this in view, our young friends will be able to distinguish, with very little trouble, the leading characteristics of these different genera, now frequently, from their similarity, so much jumbled together. With respect to *Spartium*, the most striking circumstance is the smooth, round, shining green, rush-like appearance of the stems, which rendered the *Spanish broom* useful at one time for large ropes, hence the name from *Sparton* cordage; the leaves are lanceolate, and small, and soon fall off. The standard petal is large and rounded, and the keel sharp pointed. This genus is now confined to plants that will grow in our shrubberies, the tenderer kinds which once it possessed being transferred to *Cytisus* and *Genista*. The chief observable difference between them are, that in *Cytisus* the leaf-stalk is *always* terminated by three leaflets, the standard of the flower is ovate, the *keel* rounded obtusely, and shutting from observation the stamens and pistil. In *Genista*, on the other hand, the leaf-stalk generally terminates in three leaflets; but sometimes the leaf is simple, the *standard* is much longer for its width than in *Cytisus*, and the keel is oblong, *not* wholly inclosing the stamens and pistil. Although there is a great similarity between them as to the mode of flowering, yet, especially in those we shall mention, the racemes of flowers are longer in *Cytisus* than in *Genista*, and are therefore more elegant, as well as better fitted for cutting for nosegays.

CYTISUS RACEMOSUS, flowers in long spikes; blooms from January to May and June.

C. RACEMOSUS LATIFOLIUS, much the same, with the exception that the plant is more luxuriant, the leaves larger, and the spikes of bloom quite as good. Both originally from the Canaries, at least believed to be so.

C. PROLIFERUS, yellow; habit much the same; very free flowering; blooms from February to midsummer. We have seen a white variety; but perhaps the most interesting White Cytisus is the *Laburnum filipes*, introduced from Teneriffe about 1838. All things considered, I give the first place to *racemosus*.

GENISTA CANARIENSIS, bright yellow flowers in small racemose spikes at the end of the branchlets; small trifoliate leaflets; introduced from the Canaries two hundred years ago; blooms like the *Cytisus racemosus*, when a foot or eighteen inches high; but will make a fine bush of six or eight feet in height if desirable.

G. ATTLEANA, a seedling from *Canariensis*, and differing only in blooming, if possible, more freely, and having longer racemes of flowers.

G. LINIFOLIA, flowers largish, in short racemes; leaves shining, whitish, especially on the under side; habit of the plant not so compact as *Canariensis*, but the bloom is more showy; flowers from Christmas to June. Introduced more than a hundred years ago; is a native of Barbary and the south of Spain.

G. RHODOPNÆA, racemes of flowers longer than *Canariensis*, and very sweet, somewhat rose-scented; blooms from Christmas.

G. SPACHIANA, large showy spikes of flowers; introduced a few years ago from the Canaries.

G. VIRGATA, handsome and slender in its habit; introduced from Madeira nearly a century ago; grows to the size of three or four feet.

Propagation.—These two genera require similar treatment. Young plants are easily raised from *seeds* sown as soon as ripe, or kept until the following spring. In the latter case it will be advisable to steep the seeds in warm water for a day or two before sowing them. In keeping the seeds, it is safest to keep them in the pods. In raising plants from seed many slight variations in habit and size of flower may be expected. They will not bloom until the second or third season. When six inches high, and sometime after being potted, they should be stopped to make them bushy; unless when it is desired to have a standard with a clean stem several feet in height, when one shoot should be encouraged until the necessary height is obtained. In such circumstances all side buds should be extracted as they appear, and when the terminal bud is picked out, and a few inches near the point from which the buds have not been extracted, a beautiful head is soon formed; and a few thus grown look very interesting when standing among dwarf bushy plants. For such a purpose seedlings are better than *cuttings*. When raising plants by the latter mode, young shoots, from two to three inches in length, answer best, obtained when fresh growth has taken place, after the flowering period is over, inserted in sand, above sandy peat and loam, with a bell-glass set over them, and put in a close frame.

Soil.—Equal portions of roughish peat and loam, with a little dried cow-dung as manure, and enough of silver sand, and pieces of charcoal to keep the compost moderately open, will answer well. Where these cannot be had, sandy rough loam will do; but in this case, a top-dressing of decayed dung, or manure waterings, when the plants are flowering and growing, will be indispensible.

Insects and General Treatment.—As they are comparatively hardy, existing if frost is merely excluded, and even enduring, without much injury, several degrees of dry frost, though of course not presenting the same aspect as they do under regular greenhouse treatment; the chief difficulty in their management is keeping them clear of *red spider*, as they seem to be one of its chief delicacies. For this purpose, even in bright days in winter, when it can be done without injuring the bloom, a syringing with clean water, or clear soot water as the case may be, should be given them; and if there are hot water pipes, and if not a hot water plate will answer the same purpose, namely, brushing them with a solu-

tion of flowers of sulphur, in order that the fumes may be dissipated without burning the sulphur, as that would destroy the plants as well as the spider. If the pipes, or the plate, are nearly as hot as water can make them when almost boiling, the fumes will kill the insects without injuring the plants; but for many tender plants the water must not be warmer than from 180° to 200°, unless care is taken to give a very little air. When done flowering, the plants should be pruned and syringed, and, if possible, kept close and moist until fresh growth has commenced. Then expose the plants to the full air by degrees, and give them a shady place out of doors during the hottest months, laying them down on their sides and syringing them several times with soap water, and using clean water in a similar manner the following day. By the middle of September the plants should stand full in the sun, protected, however, with glass, or any other means, from drenching rains. They should be housed by the end of October, and plenty of water given to them at all times, especially when growing and flowering.

CORONILLA GLAUCA.—The keel of the flower of this is so acute, as to resemble the turned-up point of a Chinese mandarin's slipper. This yellow-flowered plant is well known; a native of France, and has been grown here more than a hundred years. Flowers sweet-scented in the daytime. It is a compact dwarf bush. The *C. variegata* I noticed the other week.

C. VALENTINA, or STIPULARIS, is more open in its growth than *glauca;* it is a native of the south of Italy, and its yellow flowers are scented at night. It is almost always in bloom, but February may be said to be the chief time for both. Treatment the same as for *Genista* and *Cytisus*; they are not quite so much troubled with red spider, but a *white scale* frequently annoys them. For the latter, I have found nothing better than a solution of clay or mud in water, made in a tub, the plant turned topsy-turvy in it, until every leaf was completely covered, then laying it down in a shed for a couple of days, until the mud was thoroughly dried, when rustling the shoots between the hands would bring off the most of the caked mud, and the vermin along with it. After several syringings and washings it might then be restored to its proper place.

Where there is room all these plants make fine specimens when planted out, and would do very well in such orchard houses as Mr. Rivers's, with the assistance of a brick Arnot's stove. My space being occupied, I will merely mention a few more plants belonging to this group, and of dwarf compact habit, but requiring more care and chiefly peat soil to grow them in.

Gompholobium grandiflorum and *latifolium*, blooming from February to August; *Podolobium trilobatum*, from March to June; *Gastrolobium bilobum*, from February to May; *Goodia latifolia*, from March to July; *Pultenæa*, many species, from the end of February to midsummer; *Scottia angustifolia*, from February to June; *Oxylobium cordifolium*, March to June; *Eutaxia myrtifolia, Baxteri*, and *pungens*, from March to July, and even later.

All these, especially those ending in *lobium*, will require treatment more like that spoken of for *Chorozema* than for *Cytisus*. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

ORCHIDS THAT THRIVE WELL IN POTS *(Continued from page 257).*

CYMBIDIUM ALOIFOLIUM (Aloe-leaved C.); E. Indies.—This is a very old and handsome species. We know a garden in Wiltshire where there are several plants of it that are at least 10 years old, growing in 8-inch pots, and although they have not been repotted the whole of that time, yet they grow and flower well. They are placed on a shelf against the back wall of a pine stove, and have made such a quantity of roots, that the plants are almost pushed out of the pots. To wet this mass of roots was quite out of the question. All that could be done was to syringe the whole plants frequently during the summer, and to keep them dry throughout the winter. Notwithstanding this almost utter neglect, the plants, as we said before, grew well, and sent down every summer numerous spikes of their beautiful flowers. And yet this species is said to be terrestrial; that is, growing on the ground. What then, any one may justly observe, is the use of all your directions about composts, pottings, moisture, growing and resting seasons, &c., &c.? We can only use, in our defence, the old adage, that there is no rule without exceptions. The plants referred to were in a moist pinery, and the moisture arising from the tan-bed, together with the steamings and syringings, was sufficient for the support of such old-established plants; besides, the leaves of this species are thick and fleshy, like its namesake the aloe, and in consequence can bear great extremes of heat and cold, drought and moisture, and from this extreme case we may learn the advantage of severely resting orchids of similar character. The flower-stems arise from the base of the leaves, and soon push forth and hang down gracefully over the edges of the pots. We have known one large plant produce as many as twenty of these handsome spikes averaging two feet each in length. The flowers are of a rich pale purple, striped down the centre with a long stripe almost black. 7s. 6d.

C. BICOLOR (Two-coloured C.); Ceylon.—This grows on trees in its native wilds, but thrives well in a pot. The flowers are much like the first species, but a distinguishing specific difference is the presence of a sack or bag at the bottom of the lip, and also a number of stains and stripes of very deep crimson. Rare. 31s. 6d.

C. DEVONIANUM (The Duke of Devonshire's); Khoozeea Hills.—Sepals and petals creamy white striped with red; lip rich purple crimson. Flower-stems drooping. This fine species was found by Mr. Gibson, the Duke's collector, growing on the trunks of decayed trees in hollows that were filled with vegetable earth. Yet very rare. 105s.

C. EBURNEUM (Ivory C.); East Indies.—Sepals and petals pure white and fleshy like ivory; the lip is the same colour with a dash of yellow in the centre. The flowers are very large and handsome, lasting a long time in flower. Flower-stems erect. This is the handsomest species of the whole genus, but it is very scarce. 210s.

C. GIGANTEUM (The Great C.); Nepal.—The flowers are brown and purple. This is a noble plant with large short pseudo-bulbs, and very long leaves. The flowers are produced on long racemes, drooping, and very handsome. 42s.

C. PENDULUM (Pendulous C.); Sylhet.—Sepals and petals brown; the lip is red, striped with white. A noble handsome species. 42s.

C. SINENSE (Chinese C.); China.—Sepals and petals brown and purple, the lip is yellowish green, spotted with purple. The flowers are produced, very numerously, on tall erect spikes, and are deliciously fragrant. On that account the plants are worth growing.

There are several more species, but we consider that we have enumerated the best. It is a handsome genus of plants easily grown.

Culture.—Though several of the species are found on trees, yet from the peculiar situations in which they grow, namely, in hollows of the trees and in the joints where the branches meet, in which situations there are deposits of decayed leaves, sticks, and other matters of nourishing qualities to the plants, it is found in culti-

vating them that a rich soil formed of similar materials, is the most suitable. The compost that we use is a mixture of very sandy peat, very fibrous loam, half rotted leaves, pieces of rotten wood, and pieces of charcoal. In this compost they grow luxuriantly, and flower freely. Such species as have pendant flower stems are potted high; that is, the plants are set upon a little hillock in the centre of the pots. When in flower, the pots containing the plants are set upon other pots tall enough to elevate them so much as to allow the flowers to be seen to advantage in their natural drooping position. The other species, of which the flower stems are erect, may be potted in the usual way, level with the rims of the pots.

Summer Culture.—As the most part of this genus are natives of India, they should be grown in the warmest house. In summer, the heat should be 85° by day and 70° by night. When growing, they should have plenty of water at the root, and be frequently syringed overhead. In their native country, the rainy season lasts for two or three months, and there is at that time no mistake about the matter. The rain pours down in torrents, completely soaking all vegetation, from the orchid that grows on the highest trees to the creeping moss at their roots. It is during this truly wet season that the orchids make their growth, and when it ceases send forth their beautiful flowers in great luxuriance; at least the *Cymbidiums* do, though there are numbers that require a season of rest previously to blooming—*Dendrobiums* for instance. Such being the conditions in their native wilds, it follows that in our stoves the treatment should approximate as much as possible to it, in order to obtain the same or finer results. We have no doubt, excepting in peculiarly favoured instances, the orchids in our stoves are, like our pine-apples and grapes, much finer in a state of cultivation than they are generally found wild.

Winter Culture.—As soon as the annual growths are perfected, cease watering in a great measure, but not altogether, for the roots of these plants are very fleshy, and would shrivel and perish if left quite dry for a long season. The temperature should be considerably reduced, 60° by day and 55° by night will be the proper heat; but whilst in this low temperature the air of the house should be moderately dry and the syringing entirely cease.

CYPRIPEDIUMS.—We have already written upon the culture and described the species belonging to this genus at page 310 of the third volume of THE COTTAGE GARDENER, and to that page we must refer our readers.

C. FILIPES (Thread-stalked); Guatimala.—Sepals and petals reddish brown, striped, and bordered with yellow; lip pure yellow. The flowers are produced on long slender stems. We have seen a specimen with nine stems of flowers, and then it was really a pretty object, though each flower individually is but small. It is worth cultivation. 15s.

C. FLAVESCENS (Straw-coloured); Mexico.—Sepals and petals pale yellow; the lip is deep yellow, spotted with red. This species is rather shy to flower, but when it does so it is very pretty. The plant itself is of neat habit, and may be flowered by severe resting. 31s. 6d.

C. MACULATUM (Spotted); Vera Cruz.—Sepals and petals greenish yellow, striped with fine purple; the lip is whitish, with some stains of red. The flowers are large, produced on spikes a foot or eighteen inches long, standing pretty upright. This is a really fine species, well worthy of cultivation. 31s. 6d

There are two or three varieties; the best of them is named *C. maculatum*, var. *Russellianum*. Of this variety Mr. Skinner says, "Its habitat is a cold climate, and its treatment will be the same as *Oncidium leucochilum*; it luxuriates amongst pines, but only attaching itself to oaks. No plant of the Orchidiæ tribe is ever found, except *Catesetum*, towards the north coast; but there these plants form such a mass of hairy roots, as to secure them completely from the influence of the pitch which in all hot climates constantly exudes from the pines. Climate, 65° to 70° generally." This variety has very large richly spotted flowers. Very scarce. 63s.

C. MYSTACINUM (Whiskered C.); Peru.—Sepals, petals, and lip bright yellow; the column is curiously fringed or whiskered. The flowers, though small, are very beautiful, and pretty numerously situated on rather tall flower-stems. 42s.

C. STELLATUM (Star-like C.); Brazil.—The sepals and petals when expanded, form a star with five points. They are cream coloured, with markings of pink in the centre of the flower. It is slightly fragrant. 21s.

Culture.—These plants are easily cultivated. They thrive best in a moderately-heated house. The Mexican house is the suitable place. The compost for them should be formed with lumps of peaty turf, with all the fine earth sifted out from them, and then a few pieces of charcoal and broken potsherds mixed amongst it. Drain well by turning a small pot upside down over the hole, and filling round it with largish pieces of potsherds; pot them rather high in the pot. The potting season is when they begin to grow, which, if the resting season is well and timely managed, should be about this time (February). Pot in time, before the new roots begin to push forth; for we know no roots so brittle and liable to injury, from the least touch, as those of orchids. This genus will bear greater extremes of culture than any one we know. They will grow and flower well in a common stove, or they will bear and do well amongst the natives of India; but the medium treatment is the best, and most prudent. Water gently at the first; but as the pseudo-bulbs begin to swell, give abundance of that liquid, to encourage the production of large growths. As soon as the bulbs are fully grown, reduce the quantity of water, and during winter give very little: once a month will be quite sufficient. T. APPLEBY.

FLORISTS' FLOWERS.

Roses for Exhibition.—Those intended to be exhibited in May should now be prepared to commence growing for that purpose. Before placing them in the pit or house give them a good soaking of manure water, which may be made by steeping horse-droppings in water in a large tub or hogshead. One bushel of the droppings will make sixteen gallons of strong liquid manure; add a shovel of soot, which will add to the richness of the liquid manure, and will be very distasteful to the worms. This will be too strong at the first brewing, and should be reduced by adding as much more water when used. After the first lot is used, pour as much more water to the dung, add a little more soot, stir it up to the bottom with a strong stick, and let it stand for a week, it will then be nearly as strong as the first lot. About the first week in March, the first lot of *Roses* to be exhibited in May should be placed in a gentle heat of 50°, and plenty of air should be given in fine sunny days. The green fly will soon appear on the young leaves and buds, and as soon as it is observed smoke the house or pit with tobacco. The "worm i' the bud" will also begin its destructive propensities, and must be diligently sought for and destroyed by crushing it with the thumb and finger. Use the syringe almost every day, as that will cause the buds to swell kindly, and prevent the approach of that insidious enemy the red spider. Train the young shoots to sticks in an open manner, so as to allow every leaf its due share of light. *Avoid particularly too much haste in forcing*, as that will cause weak shoots, small flowers, and pale colour in the flowers. Place the Rose plants as near the glass as possible to prevent weak spindly shoots, and imperfect leaves. T. APPLEBY.

THE KITCHEN-GARDEN.

If the weather continues open, much will now require to be done. *Cauliflower plants* that have been grown in pots should at once be turned out under hand-glasses. It is a good plan, supposing the ground to have been previously well manured, trenched, and ridged, to stretch the line across the quarter intended for the plants, and to cast out a shallow trench about three or four inches wider than the glasses, and from four to six inches deep, and then to mark out the place for each glass, and take out a few spits of the damp earth, replacing and intermixing with the soil some old mushroom-bed materials, dry vegetable soil, old dry cucumber or melon soil, or some other healthy dry material; and when the plants are turned out, to well dredge the surface about their stems with dry dust of some kind, occasionally repeating this operation, raising the glasses in due season as growth proceeds, and applying tepid liquid-manure. Although the weather may be cold, the growth of the plants thus treated will be rapid; everything being healthy and fresh about them, they will make astonishing progress compared to those that have been wintered under hand-glasses, which, after a long damp winter, are likely to have the earth become cold and close about them, and, consequently, not in a kindly condition to admit of a free circulation of air. In some close retentive soils, if planted out under hand-glasses in autumn, the plants are liable to become much injured by canker about their stems at the surface of the soil, which occasions the loss of many plants about the month of March, when the sun is becoming powerful and the wind searching. This disease should be closely looked to at this time, and dredgings given of fresh slaked lime or newly made wood ashes, both of which applications we have seen successfully used to prevent farther progress and dry up the canker blotches. Such as have been wintered under hand-glasses, may also be considerably assisted by removing from their stems some of the wet surface soil, and replacing this with some dry healthy materials. The hand-glasses we prefer are of zinc framed, and, of course, all with moveable roofs or tops, and the base made to stand as a fixed shelter; air can thus be so well regulated in all kinds of weather, without either punishing the plants with cold and sudden draughts, or being in any fear of drawing them weakly up.

The young plants in pans, or those sown in slight hotbeds, should be pricked off as early as possible after they can be handled; at first, they may be pricked in pots or pans an inch apart, and if placed in a comfortable situation, taking care to surface-stir often, they will soon be in order to prick on slight hotbeds or some healthy situation under protection.

Routine Work.—Take into a dry sheltered shed or cellar some *Endive* to blanch; look well after the frame *Lettuces* to see whether they are blanching now for use, as well as the growing plants of various sowings. All things should be kept dry, but well aired, and health and vigour must be maintained by frequent surface-stirrings and methodical dredgings of dry dust, which will prevent, as we said before, both canker and mildew.

A succession of *Peas* and *Beans* should be sown, and the earliest crops protected with brushy short sticks, having their stems dredged occasionally with dry dusty materials. Every advantage should be taken of frosty mornings, for the purpose of forking over all ridge-trenched ground as often as possible, in order to get it into a healthy pulverized condition for spring seeding and general cropping.

Framing at this season requires every attention, forming kindly hotbeds for various purposes, taking care to have the materials well-worked by frequent turnings previous to forming the beds, and repeated forkings after the beds are made, so that both fermenting materials and plants may always be ready for every available light that becomes vacant.

Lettuce plants, *Cauliflowers*, &c., and the early sown *Horn Carrots*, growing in temporary made turf-pits, may now be protected with hoops and mats, or with straw, canvass, asphalte, or any other kind of available material made into light protectors the same size as the lights; and every glass light should be turned to forcing account.

James Barnes.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

How delightful it is to go into a *clean* cottage! I wish all the poor,—all the female members of the labouring classes,—would see and feel the immense importance as well as comfort of cleanliness. It is health too, as well as beauty and respectability, and children never look half so pale and sickly, however poor their food may be, when they live in cleanliness, as when they are dirty, and exposed to an unwholesome atmosphere in consequence.

It is nevertheless a remarkable fact, that however dirty and wretched the lower rooms may be, I have scarcely ever seen the sleeping rooms in the same state; they are *generally*, but I will not say *always*, neat and clean, the bed-linen remarkably so; and in cases of illness, allowing for the want of comforts and even necessaries always strikingly apparent, there is much less wretchedness to be seen up stairs than there is below.

In some cottages it gives one real pain to see the dirt and disorder of the whole household, making poverty loathsome instead of interesting, to the spectator's heart; and speaking plainly of careless, unthrifty, wasteful habits, as to cause in the feeling of charity to withhold that which would mainly be misused or squandered thoughtlessly away.

It is a hopeless [illegible] attempt to make people clean and [illegible] thing, in opposition to their habits. It really is time and money thrown away. A lady of whom I have often heard my sister speak, whose ample means were wholly devoted to charitable purposes, and whose eye and hand guided and superintended all, experienced this continually. In every case of *dirty* wretchedness that met her eye, she strove to make them clean,—would replace the tattered, broken furniture with new, and would, at her own expense, have the cottage and family made thoroughly clean, and properly clothed from head to foot. But no sooner was all this done,—no sooner were the gowns and frocks put on, and the women who had scoured the house departed, than all was again dirt, and rags, and ruin; and the sum expended upon the short-lived decency might as well have been thrown into the fire. This only shows how necessary it is to give children habits of cleanliness from their earliest infancy, for when once the habits are formed, when once the pliant twig has become a tree, no training or forcing can change its form, and the mischief can never be undone. Money may be spent upon such a family, sum after sum, without their being in the least degree benefited by it; for where cleanliness is wanting, neither orderly nor saving habits are to be found.

I think the poor often suppose that because they are poor they cannot help being dirty. What a mistake is this!

Some of the very poorest people I know are the cleanest, while others who are in reality better off, are not fit to be seen. A clean gown, or coat, if ever so old, looks beautiful upon the cottager, particularly if it is well patched and mended. I look upon such a sight with more pleasure than on the finest picture, because it is so honourable. Rags are not the sign of poverty half so much as of idleness and extravagance; and when I see clean, well-patched clothes, they excite the liveliest admiration and respect. We may always expect, too, to find the cottage of such persons as neat and nice as themselves, and their children under better control than those of their untidy neighbour. The *principle* of neatness can scarcely be strong in the mind, without peeping out in everything.

We once called at a cottage in the village to inquire after a man who, we were told, was ill. It so happened that we did not know the family, but we heard that Willoughby was ill, and unable to work, and we stopped to make inquiries. On opening the door, I shall never forget the impression it gave us. They were at tea, the cloth on the table was snow-white, the cups and saucers were brightly clean, and the loaf, the morsel of lard on a plate, the knife and the spoons, were equally delicate. The husband's shirt which seemed to have been lately ironed was airing at the fire, and was as snowy as the table cloth. The whole kitchen was so clean, the chairs, dresser, clock case, &c., shone so brightly, and everything had an air of so much neatness, that our first exclamation was of delight at such a scene. Poor Willoughby had been out of work some time, and they had two or three little children to support, yet the wife could not be dirty or untidy, and the scanty food they possessed was served up comfortably. The man looked happy under his trial, and seemed gratified at the praise we could so well bestow on his wife's good management; and to some observation made, he replied, "I never have come home to an untidy house, ma'am, since I've been married." What an honourable and pleasing testimony to the exertions of the wife and mother! and what checks to the beer-house would such wives and mothers be! The Willoughbys are poor labourers, not in the least differing from their neighbours, except in the habits of the wife, who is always neat in her dress, and keeps her husband's clothes in the same good order. They are next door neighbours to Isaac C——, of whom I have already spoken; and are always ready to do them kindnesses in their old age. After Isaac's accident, when he was thrown behind hand with his allotment ground, I observed Willoughby and his wife working on the land with all their might, with their little child bundled up in a cloak, laying on the ground near them. I found they were helping Isaac, who could not work himself to get in his crop, and were both digging away as fast as they could to lose no time, and seemed only too happy to be of so much use to their sick neighbour.

Now it is quite as easy for every labouring man's wife to be clean and neat, as for Mrs. Willoughby. It is quite as easy for them to make their husbands comfortable in *that* way as for her. Poor and scanty food may be put before him as neatly and as pleasantly as if it was plentiful and savoury. The house, and the furniture, and the clothes may be as clean and shining as those of the Willoughbys, for one man with a family, dependant upon his daily labour, is neither better nor worse than another, as far as outward circumstances are concerned. The difference is only caused by the habits of the people themselves. An untidy, slothful, slatternly woman will be miserable and destitute, and dirty, and starving, where a clean active one will be respectable, decently clothed, cheerful and contented. In my next paper I will give a further proof of this assertion by sketching the characters and habits of two of "our villagers," which will, I hope, place in a striking light the advantages of cleanliness over dirt, and the possibility of maintaining the former under almost similar circumstances of sickness and poverty. Very happy shall I be, if any of my cottage readers will think over what I have said, and endeavour to follow the example of Eliza Willoughby. They will not find it a disagreeable task, although it may at first be difficult; and if they strive with a desire to do their best in the station where their Heavenly Father has placed them, it will cheer them on, and lighten their toil. It is our duty to make the most of everything we have, and to improve every situation by *lawful* means; and in the humbler station of life we shall be doing a part of our duty to God and man, by making our homes and our families as comfortable and as happy as we can. *But*, without the grace of God, we can do nothing.

SHADING BEES AND FUMIGATION.

I have read the communication in your last number of "A Country Solicitor" on the subject of aspect for bees. One sees daily, almost, such frequent instances of failure in experimenting on bees on the part of some proprietors, and of success in trying the very same thing on the part of others, that it is really often difficult to discriminate who is right, or where the fault rests. Probably there is none anywhere; for so many points are to be taken into account that he must be a bold man who prescribes any one universal law in all localities. I am not about to contend there was nothing amiss in the case cited by your correspondent of his shaded hive; but I incline to the opinion that he draws a wrong inference. Our friend says his "bees had an excellent and uninterrupted success: they worked well, and as hard as any hive in his collection." Now, would this have been the case if there had been anything materially wrong in position, or in the domestic arrangements of the family? We must look for some other cause; for I cannot for an instant imagine that these bees, working so well, would have been found by hundreds "lying on the ground and paralyzed the moment they left the direct influence of the sun." It would thus appear that in the short time, the very few moments during which the bees were flying from the sunshine to the shaded hive, their "powers of endurance" were exhausted. This is utterly at variance with all probability and all experience. Now, I can tell your correspondent that I have seen precisely the same thing where the hive stood in a broiling sun, especially towards the evening, when the bees return home loaded and fatigued. At that time a slight puff of wind or draft of air is sufficient to prevent their reaching the hive, and they fall with little chance of rising. The position chosen for the stock belonging to the "Country Solicitor" does appear to unravel the mystery, and to be the very one to cause all imaginable currents to sweep around the hive. Or if any overhanging boughs of the tree, or ivy, intercepted the line of flight of the bees, the mischief is explained at once. If bees require exposure to the sun, how is it with them in such houses as Mr. Golding and others recommend—entirely closed up from its rays, and the hives facing any way or all ways? The interior warmth of a hive is always sufficient, and external heat the bees will escape from if they can. The great matter is security from *any wind;* and no doubt this is wanted to the greatest extent where a north aspect is chosen.

I am induced to add a word regarding your other correspondent's letter, "A Country Curate." Nearly the same observation might be made as to the conflicting opinions among apiarians relative to the practice of fumigation—some finding it to answer well, and others either imperfectly or not at all. I was led to try it, some years ago, after witnessing its success at the apiary of the then existing "Oxford Apiarian Society," where the curator practised fumigation in making autumnal unions, often, as he said, with the loss of "scarcely a bee." I at once went to work in a similar way, and never had the difficulty spoken of by your correspondent. There must have been something wrong, either in his material, or apparatus, or mode of proceeding, for my experience has always resulted in a complete stupefying of every bee within reach of the smoke. I have even been rather wanton in testing its effects; for several times I used it in the middle of the day, by way of experiment, on a side box where the bees were working. These dropped down like so many peas, as I saw through the window, and so remained, probably a quarter of an hour or more, when I opened the ventilator, and they recovered and crawled up the combs again, no worse that I could see. Neither could I observe that the bees were either weakened by the process (as some apiarians have said) or in the least degree irritated. To me they seemed to have no more consciousness or recollection of the trick played upon them than a man who has had a fit, and recovered. I own my surprise at the observa-

tion of "A Country Curate," that "the brimstone-pit is by far the most merciful way of dealing with them," particularly, as he tells us in the succeeding paragraph, that the "1300 fumigated bees, which were saved were united the same evening to one of his weak stocks, which they very beneficially strengthened by increasing the temperature several degrees in a hive that otherwise might have perished." Your correspondent proceeds to say, "In uniting these bees, I was surprised to find how readily they were received by the old inhabitants of the hive to which they were joined. The bees fraternized with all imaginable good will." I have witnessed the same beneficial results often; and, after such satisfactory testimony, can but be astonished at the eulogy passed by "A Country Curate" on the "brimstone-pit." It may be pertinent to observe, that a little experience is required in practising fumigation, both as to the material and the mode of using it with effect. I have known instances amongst my neighbours where what is called *Racodium cellare* has been entirely mistaken, and another fungus ineffectually substituted. Perhaps on another trial your correspondent will be successful in saving, not 1300 valuable lives, but many thousands, to invigorate his weak stocks, and reward his humanity. AN OLD BEE-MASTER.

HONEY DEW—DEPRIVING BEES.

I WILL, in the first place, briefly say that I thought I might not have answered the inquiry of "P. V. M. F." in as clear a manner as I had intended; but on reference to my note I think he ought to have understood my meaning. I will assure him it is a fact. Bees do collect honey dew, and I have seen bees collect it. If "P. V. M. F." will ask the question from some nurseryman who grows young oaks, he may be able to ascertain the fact in a more satisfactory manner than from a grey-headed man like myself, of only 25 years unremitting attention to bee management; and he will find, also, that honey dews are not of such unfrequent or of such rare occurrence as he appears to think.

I will now tell you that I never wilfully destroyed a hive but the first I possessed. Since that time I have kept them either in square boxes or common straw hives, the size of which ought to be regulated by the situation in which they are placed. A country abounding with woods is the best, both as regards quantity and early collecting of food. Where hazles are abundant, bees first collect from the catkins of them; next, the bloom of the large butter-dock, and another plant in the woods, the name of which I am ignorant of; the leaves and flowers of a dark green, and the roots trail in the ground. (*Mercurialis perennis.* ED.)

I knew a veteran bee-keeper some thirteen years ago, who kept bees close to the woods of Lord Grey, between Wordsley and Enville. This old gentleman had two hives in the spring, and at the end of the season they had increased to eleven. Now here, in a situation like this, large hives would be proper; but in most places hives or boxes ten inches square are quite large enough, and made of two-inch stuff: if larger, except the season is favourable, it is more than possible a swarm put therein in the middle of the swarming season, will not be able to fill the hive; and a small hive full will stand the winter far better than one of twice the capacity when only half full. They undoubtedly commence in an empty hive at the top, and there you will always find the honey; the young bees will ever be found lower, and also any vacant cells. If it is required to increase the size of the box, when it is observed through a glass window of three or four inches square that the first box is full, add another eight inches deep, and of the same size across; place this under the other (not over it), and if through a similar opening in the lower box you see honey half-way down, not later than the 12th of August, in a good locality, you may venture to remove your upper box. Now, your lower box being composed of the same stuff, that is, two inches thick, and having neither top nor bottom, but having a top previously prepared with screw holes therein, ready to place thereon when the upper box is removed, pass a fine wire between, to separate the combs in the upper from the lower, take off the top box, reverse it on a stand [illegible] the same height as the entrance to the [illegible] previously adapted cover or top; screw it down at your leisure. You are now in possession of what was your object; you will have honey, but neither young bees, nor bee bread, nor pollen. The young bees will suffer no loss, as the nurses will not be disturbed in their occupation; the pollen will be there to supply their wants; and you do not want it yourself. Now, as to your prize, I will assure you by this method you will leave them the same door, the same house, though less, and they will want no whipping to induce them to rejoin their companions. If they delay to leave what you want, disturb a few of them with a quill-feather, and give the box a few gentle taps at the side they remain on, and you will very soon see it expedient to move the box some twenty yards from the place; and your work will soon be finished by removing the few that remain with the feather. You need have no fear about their return to the proper quarters. Should such a thing occur as the queen to take wing, why the rest will follow; but it will not, on such an occasion, be a long journey; and you need not fear this, if you, in the first instance, cause a commotion in the box by tapping,—you will know that all is right, as the greater part of the bees will take a crowded course over the edge of the box exactly where the queen has gone in her removal from one box to the other.

Now, if your colony should require assistance through unforeseen bad weather or other cause, place a proper feeding box under that in which your bees now are; whilst they can bring in pollen, you can feed with the cheapest foreign honey at much less cost than the value of your own, and as the season advances, add thereto a little good brown sugar, and this last, you will find by experience, is the best preserver of their existence you can supply them with, so soon as you observe them to have given up their regular flight in quest of their proper food. You will at the latter end of the season frequently, and especially before a heavy rain, which may follow the next day, see them come out for air and exercise. Feeding now with liquid food I much deprecate, as great numbers will be induced to partake too freely, and must perish from want of their summer strength, and dropping in cold and shaded places. By this method you destroy few, comparatively none, of your bees, and you have the best part of the honey.

Again, small boxes may always be expected to swarm earlier than large ones; and a new swarm will ever, if placed in a clean and new hive, work much better than an old stock. And, further, old combs produce small bees, having been so frequently lined; are also of much less value, making very little wax. If the season is fine, a top-glass may be used, with this precaution, to wrap any such glass very closely with linen cloths; as without preserving a temperature in the glass equal to that in the hive or box, you need not expect the bees to work therein; nor can you expect the proper temperature if you do not be careful to fix any such glass close to the box or hive, either by paste or sealing-wax; and it must be remembered that cross bars are essentially necessary, in the boxes mentioned particularly, two to cross the upper part of the lower box. S. I. R.

VARIOUS RECEIPTS FOR VARIOUS PEOPLE.

AT this time of the year every second person one meets is looking wretched, and shuddering, complaining of colds and coughs; and although no notice is often taken of a "little cold," depend upon it most of the "ills to which flesh is heir to" can trace their origin to a "chill!"—That most expressive word used so often by our poorer neighbours. "A stitch in time saves nine," and a "little cold," a slight chill nipped in the bud, thawed, as it were, away, prevents the seeds of ill-health and future misery from taking root. I know what a trouble it very often is for the family of a labouring man to apply to the parish doctor, and how almost impossible it is to walk, it may be some miles, to procure medicine for a slight ailment; but those who live in the country and have the smallest piece of garden, can easily raise medicines which often perform cures for trivial aches and pains quicker and more pleasantly than the drugs from the apothecary's shop. We all know what a common herb *sage* is, and yet there are few things so serviceable for a cold

tea. It is made thus:—Put a handful of sage ito a teapot, pour boiling water on it, and let it stand the fire for half an hour. Drink it when in bed, lst it is quite hot. Repeat the dose for a night or l your cold will most likely have disappeared. In) make the sage tea more palatable, a few leaves of hyme may be added.

yroyal is also a most useful herb, and must be used ame way. There are, I believe, many wild herbs re most valuable for their medicinal properties, but not sufficiently master of the subject to write "*know* about them, I must leave them to their fate, merely ing one which I know from experience to be very ble in cases of coughs and delicate lungs—this is *nd ivy.* It is found in almost every hedge, and steeped in boiling water, and then allowed to get t should be drunk the first thing in the morning, ; is thickened with a little honey, may be sipped (with enefit) during the day when the cough is trouble- How often when a poor little child has a sufficiently gh to keep its mother awake at night, is "some- bought at the shop for it, which certainly lulls the nd gives the mother a good night; but it is done at of the child's future comfort, for it merely stops the uring the time the child is stupefied. If medicine e resorted to, the medical man, the clergyman, or nd neighbour who understands the nature of drugs, be consulted. Look at the squallid miserable ap- e the poor children in most towns present! I have octors say, that generally speaking, this wretched- caused by their parents so continually giving them, them almost, on "a drop of something soothing." only remembered what a store of misery they were ip for them, in thus training them, as it were, to inking, they would pause before they brought their up to certain unhappiness in this world, and (unless ned to Him who always is waiting to receive sinners), al misery hereafter. A very efficacious *remedy for h of a child,* is to slice a common turnip rather thin, r it to sprinkle brown sugar; let it stand for a few ith a saucer pressed down on it, and the syrup which from it will be found very soothing to the chest, if requently. To those who propose and give medicine oor, the following *receipt* will be found useful, par- *for old people:*—One tablespoonful of honey, one ar; let it stand by the fire till it is well mixed, and ld 60 drops of ipecacuanha wine, and 20 drops of m; take a teaspoonful night and morning, or oftener ugh is very troublesome. How often in the case of s by fire is time lost, by the neighbours not knowing act, and waiting till the medical man arrives. If it mbered that the very best thing to be done when any- received *a burn or a scald,* is to lay on the part that ed a thick coating of cotton wool or wadding, so as letely exclude the air, much future pain is avoided, recovery is more rapid and certain than if several ld-fashioned remedies had been tried, such as scraped turnip, &c., which although they ease the pain for the , yet do no permanent good. A capital domestic for *a severe cut* are the leaves of the common white ey should be steeped in brandy for some weeks, ready and then a leaf bound tightly round the wound. *ear-ache,* toast an onion thoroughly, take the heart it into a piece of flannel and insert it in the ear, previously put a few drops of hot water into the ear. *rains* or *bruises* are much eased by fomentations, of poppy heads or chamomile boiled in water, or ater alone, only taking care that it is as hot as the n bear.

A FRIEND.

ECONOMY—BROWN'S FUMIGATOR.

a quarter of a pound of shag tobacco to fumigate my use, 14 ft. by 10 ft. Cost, 1s. After fumigating, pour parate half-pints of boiling water into the copper where the tobacco has been placed, turn the handle the tobacco dust with the oil will instantly be re- rom the interior, and the inside will immediately be dry. The quart of decoction or infusion of tobacco will make three quarters of a gallon of strong tobacco water, worth the first cost of the tobacco, to any person who has wall-fruit trees, roses, &c., for destroying the *green fly.* Care should be taken to use a glazed earthen vessel for pouring the decoction; if wood be used, it will smell of tobacco for weeks.—ROSEA.

FUEL ECONOMY.

IN common with several other gardening periodicals, I read your very excellent work, in my estimation, so superior to any other of the same class in point of sterling information, as to put them completely in the shade; but there is one point on which I think I can enlighten a great number of your readers. Are you aware that the inhabitants of South Wales are in the practice of economising their coals to an immense extent by mixing clay and small coals together; about one-third clay to two-thirds coals, or as many coals as the clay will combine with? By this means, the cottagers keep in their fires day and night, for a whole winter, with one ton of small coals. The fire once made up, will keep in for 24 hours. It is particularly applicable for greenhouse fires, either with flues or hot water, as the combustion is slow and steady. The only care to be observed in using it is to combine the clay and coals intimately together—the better way is by trampling,—also, that the fires are not disturbed by poking.—TAFFY.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

N.B.—We have to apologise to many correspondents for being prevented, unavoidably, answering their queries this week.

YELLOW CACTI (*M. D. P.*).—These require similar treatment to the red sorts. If we knew which division of cacti you refer to, we should be able to give a more definite answer.

CANTUA BICOLOR (*Ibid*).—We are not quite sure whether it is, strictly, a greenhouse plant. We suspect that you mean *Gilia coronopifolia,* or *aggregata,* both of which are biennials, requiring to be sown in summer, potted off, and established before winter, and kept in the greenhouse all that season. They require sandy loam and peat.

CINERARIAS SHOWING FLOWER (*J. M. F.*).—We are afraid these will disappoint you for exhibiting in May, as for that purpose you should have kept them cool, and grown them on by shifting them. If you have no others to fall back upon, cut, or pick, the flowering stems out within an inch or two of their base; give manure water, when water is required, until they begin to push again, when you may shift them into one size larger pots. They will thus give you a nice head of bloom, but the individual stems will not be so fine as if they had been unstopped. Whilst on the subject, we may as well mention that from large pots the plants and flowers are not, generally, equally good in proportion to the size used. When grown to ornament the greenhouse and sitting-room, six-inch pots are large enough for the former, and four and five-inch pots for the latter.

FLOWER-BEDS (*Lanceolet*).—The white *Matricaria* will make a bed certainly if you like it. We never use it. *Petunias* "will get broken" by the winds and rains, as we have stated frequently, unless they are managed as we always insisted on. See the back volumes.

MOON'S VICTORY (*Ibid*).—"Moon's Victory" was certainly not dull, and the Geranium of that name is the very brightest of the bright varieties; but we never recommend it for a bed—it is not a bedder by any means—only fit for a mixed border, and one of the best for that mode of growing.

VERBENAS AND HELIOTROPES (*Ibid*).—Any of the Verbenas will grow with the Heliotrope, as well as the *Duchesse d'Aumale,* but not for the same effect as we obtain by that mixture.

GERANIUMS (*H. S. W.*).—"Which are the two best and showiest fancy geraniums for planting out?" Who can tell? Can you or any of your friends tell us the best pattern for a lady's dress for next summer? She is full height, not stout, nor bowed in the shoulders; her hair is dark, brown eyes, and a light complexion. The easiest way to get out of such difficult matters is to give three patterns, and we shall name the three best Geraniums we know. 1, *Diadematum rubescens;* 2, *Diadematum;* and 3, *Lady Mary Fox;* but which of the three is the best, or which are the best two of them, we cannot at this moment determine.

Your flower-garden next week. It is quite original. Do the circles all meet at the edges? You show some that may and some not. You have room enough to give another new feature—but try it first on paper. Exactly in the middle between every two circles, and nearer to the walk, draw a triangle, with one point directed to the centre between two beds; a quadrant would be a better shape with the sharp point turned to the centre between the beds. Then repeat the same figure on the opposite side of the circles, and let us hear how you like the whole.

ORCHIDS (*A New Beginner*).—You have got a treasure in *Cattleya superba*. It is a handsome species, and very scarce. Take it out of the pot, and fix it to a piece of cork wood, with the bark on it, in the manner Mr. Appleby describes. Do this at once, as it will soon be putting forth new roots, and a fresh shoot. After it is fixed, cut it through the rhizoma, or shoot to which the bulbs are attached. Let the cut be made two bulbs behind the leading one. It will then, and not before, nor afterwards if not cut, make a new shoot immediately behind the cut. The other three orchids you mention are not worth growing.

STOVE CLIMBERS (*Loggerhead*).—Considering the size of your stove, you could not do better than have narrow boxes next to the windows filled with rich earth for your climbers. They would fill the space you allot to them sufficiently without the pits you allude to. Your selection of the kinds is a good one, excepting *Dipladenia crassinoda*, which is more fit for pot culture, and training to a trellis. The *Passiflora quadrangularis* would be more suitable.

ANEMONE SOWING (*Jane*).—Sow anemone seed in April: cover slightly. *Anemone hortense* sow in pans, under glass, in a cold frame. Increase by division, as by seed is uncertain. The half-inch covering you allude to was an oversight.

PROTECTING FRUIT BLOSSOM (*Ibid*).—Fruit-trees against walls are best protected by canvass covers fixed to a roller, let down at night, and drawn up again in the morning. Woollen netting with close meshes is a good substitute. It should not be close to the tree, but at least five inches from it.

GRASS (*Ellen Reed*).—If the grass of your lawn is made up of the coarse species and varieties, it would be as rational to ask, "if there is anything that can be used" to change the colour of the Ethiopian, as to change the nature of the smallest blade of those grasses. Constant mowing and rolling will keep the grass, so far fine, and nothing besides. Daisy rakes will carry off daisy *flowers*, but daisy flowers are as harmless to grass as butterflies; daisy *leaves* and *roots* do the mischief, and no rake can reach them without injuring the grass also.

VERBENAS (*Ibid*).—These do not group with geraniums in the same bed. We advised only one kind of verbena to be planted with heliotrope, but any of the strong ones will grow as well. We are not aware of any better verbenas than those we named last season, but we shall inquire. We have discarded the *Voltaire* heliotrope from the flower-garden, for looking every morning of the season as if frost-bitten the night before, and we have no experience of it from seeds. All the best bedding plants from seeds or cuttings, with culture, propagation, height, colour, and habit, are given in our two last volumes.

ARBUTUS (*K.*).—A bush of Arbutus, a yard in diameter, and three yards high, can easily be removed next August, or as soon as you can count the flower-buds, which is the true criterion for the best time for transplanting. It must be carefully prepared this spring, however, for the change, and we are in daily expectation of a long promised account of a novel mode of preparing such plants, from one of our contributors.

NAMES OF PLANTS.—1. *Teucrium marum*—Cat-thyme. 2. *Myrtus communis*, var. *tarentina*—the Box-leaved, as near as we can judge from the small bit sent. 3. *Mathiola tristis*—commonly called the Night-scented Stock. 4. *Lysimachia nummularia*—commonly called Money-wort. 5. *Tremandra verticillata*. 6. *Aphelexis proliferum*. 7. *Adenandra fragrans*. 8. Uncertain. Send us a specimen when in flower. 9. *Sollya heterophylla*. 10. *Lysimachia ephemerum*—the Willow-leaved Loose-strife. 11. *Ruscus hypoglossum*—Tongue-leaved Butcher's Broom. 12. Leaf of hardy herbaceous plant so broken that we could not make it out. Send us a specimen when in bloom, with a flower-leaf too. 13. *Sempervivum tortuosum*—the Gouty House-leek. 14. *Cereus flagelliformis*—Creeping Cereus. 15. *Aloe variegata*—Partridge Breast Aloe. The insect is the common cockchafer.

PIG-STYE (*B. J.*).—If large enough it would convert into a greenhouse, but we know nothing of what it is constructed.

CONCRETE WALKS (*J. S.*).—Gas lime will not do for these. Various shades of blue would appear on the walks, it would not bind, and it would kill all your box edging.

SCARLET GERANIUMS (*F. H.*).—A row of these may be planted in the front of your standard roses on the bank before your drawing-room window. Answers to other questions next week.

DRAINING LAND (*A Constant Subscriber*).—Cut a main drain down the centre of your ground, with side drains falling into it. The main drain must terminate in the lowest part of your garden. Too many circumstances concur in altering the price of the operation to enable us to tell you what will be the expense. The cost varies from about £3 10s. to £5 per acre.

PLATFORM PLANTING (*F. P. V.*).—You will find an article by Mr. Errington in our pages to day, and much more in previous volumes.

EGGS AND BANTAMS (*An Original Subscriber*).—"Can any of your readers inform me how long hens' eggs can be kept, before they are too old to be hatched? And whether a breed of bantams is to be purchased having a black tail and mane, with white body, as a distinct breed?"

CARNATIONS (*W. J. M.*).—You will find a list at page 90 of our present volume, and directions for hybridising at pages 252 and 274 of vol. 4. The best time to purchase a swarm of bees is in May or early June, taking care to have a first swarm.

HIMALAYAH PUMPKIN SEED.—When we announced at page 262 that Mr. C. Stevens was willing to supply these seeds, knowing from experience the hosts of applicants he would have, we stated, *of our own accord*, that two postage stamps must accompany each application. We were not deceived in our anticipation, for we have since heard from Mr. Stevens, who is a private gentleman, stating that he intends to pay over the value of the surplus stamps to the funds of the Aged Pilgrim's Friend Society.

CINERARIA NOT BLOOMING (*T. S. C.*).—You do not tell us where or how you are growing this. The buds seem to intimate that the plant has been kept too dry and too warm. Cinerarias never do better than in a cold pit. We could not discern any insects on the leaves of your *Chorozema Chandlerii*. The brown patches on the under part seem to be small masses of a fungus.

DYEING WOOLLENS BLACK (*M. K.*).—In explanation of the recipe given at page 27 of our 4th volume, an ounce of acetate of iron is required for a quart of water, and half a pound each of logwood chips and madder.

EXOTIC FERNS (*A Subscriber*).—We cannot recommend nurserymen. Any of the principal houses will supply them.

MANURING APPLE-TREES (*C. G.*).—There is very little probability of your over-stimulating these by applying liquid-manure to the grass of your orchard. If the trees are old, most likely you will greatly benefit them. In more than one instance we have recommended to an emigrant cultivator Stevens' Book of the Farm, and the four volumes of THE COTTAGE GARDENER. Thanks for your hint.

SAUARI NUTS (*Sister Ann*).—These, the Suwarrow nuts of the shops, are the produce of the *Caryocar nuciferum*, which is a tree reaching the height of 100 feet, and is a native of Guiana. We are not aware that there is a living specimen of it in England. An answer to your other question next week.

SLOPING BANK (*W. D.*).—You may plant lettuces or any other crop that you wish to retard on the north side of this. Without knowing the nature of your soil we cannot advise you as to the trees you should plant for a screen.

SCRAPINGS OF A TRAIN-ROAD (*J. P.*).—These which you say consist nearly all of horse dung mixed with coal-tar dropped from the wheels of the trains, you will find a very rich manure. They will do very well to mix with the soil in making your new asparagus-bed.

THE USE OF TOBACCO.—A gardener writes to us thus:—"I have been a subscriber from the beginning, and am a great admirer of your work, THE COTTAGE GARDENER, but I think of late there has been too much levelled at the cottager. I have the happiness of living among many cottage gardeners, and take great pleasure in them, for I love the man that loves his garden and his home; and well may the authoress of *My Flowers* say, for October 31st, 'although they are poor they have wills and ways of their own, each in his British castle.' I like to see them treated with tenderness; and why may not the labourer enjoy the fruits of his labour?—the rich have their wine, and the comforts of this life; but I am sorry to say some think the poor require nothing but work. And why should the poor man be deprived of his pipe, which is the only enjoyment for hundreds of our fellow men in humble life, when walking round their gardens or allotments in the company of their wife and children, after their hard day's labour? Those men that spend their money at the beer-house are not the men that cultivate the cottage gardens. Hundreds of labourers take their pipe after their frugal meal without tasting beer for months; but I should also like to see them have, as well as they can afford, their own home-brewed, for a hard-working man requires it. The man that looks well to his garden is, I am quite sure, the man that also looks well to his home." We agree for the most part with what our correspondent says, except in charging us with being too hard upon the cottager. There is not an applicable line in our pages that is not written for his good. If tobacco is smoked medicinally, we have not a word to say against it; and if it proceeds no farther than a pipe during a walk in the garden there is no great harm there, though we do not feel that the society of the wife and children could not be enjoyed without one. We always remember that 365 pipes cost 30s.; and even if it stopped there, the cottage smoker at the end of the twelve months would look with more satisfaction upon 30s. in the savings' bank than upon the reflection that they had been dissipated in smoke. Our correspondent should remember, also, that we write against general consequences. The consequence usually is, that a smoker is a drinker; and such as our correspondent are the rare exceptions.

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WEEKLY CALENDAR.

FEBRUARY 13—19, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
nstone Butterfly seen.	30.236 — 29.837	43—21	N.	—	21 a. 7	8 a. 5	5 16	12	14 31	44
entine. Raven builds.	30.126 — 29.957	51—47	S.W.	0.16	19	10	6 11	13	14 29	45
tsfoot flowers.	30.007 — 29.952	56—43	S.W.	0.14	17	12	6 57	14	14 26	46
UAGESIMA SUNDAY.	30.296 — 29.880	50—32	N.W.	—	15	14	rises.	☾	14 22	47
tridges pair.	30.300 — 30.209	50—42	S.W.	—	13	15	7 a.17	16	14 19	48
ose Pigeon hatches.	30.199 — 30.146	54—42	S.W.	—	11	17	8 40	17	14 14	49
cus flowers.	30.080 — 30.008	56—48	S.W.	0.01	9	19	10 1	18	14 9	50

ie most beautiful sights among the many to be seen annually apes of England are derived from her apple-trees. We know so rich as looking down into a Herefordshire valley when re in full blossom; for it realises the poet's fancy of groves the Vale of Cashmere. Visit again the Hereford valley at an autumn, when the apple harvest is abundant, and walk rees in a well cultivated orchard, and there will be found a a as in the spring, in the tints well contrasting with the a fragrance that will in no way offend another of our senses. rs thought so before us, for he has written—

" whilst English plains
flush with pomaceous harvests, breathing sweets,
let me now, when the kind early dew
unlocks th' embosom'd odours, walk among
the well-rang'd files of trees, whose full ag'd store
diffuse ambrosial steams, than myrrh or nard
fore grateful, or perfuming flow'ry bean."

ur readers will visit the Poet's Corner of Westminster Abbey l a somewhat elevated profile bust, with this quotation from f Virgil's Eclogues:—

Honos erit huic quoque pomo.

"Honor shall be awarded to the apple also."

e motto chosen by the same Philips for his poem entitled t appropriately refers to his best work, whilst it marks the hus raised to his memory by Lord Chancellor Harcourt. But urial place is not there, for he lies interred among the ds of which he was the laureate.

is born to literary ease, for his father was Archdeacon of and rector of Bampton, in Oxfordshire—the town where our n on the 30th of December, 1676. We are told that he was ly promise, and of temper sweet, but of feeble constitution— es which we can well understand would win for him the rd of even a public school, and would justify even the "rigid n" who presided for making him an exception to that obe- rugged rules severely exacted from the rest." Want of vented him joining in the sports of the other Winchester d that weakness of the lungs which at length proved fatal thin his chamber when others courted rude health on St. hill. There is no affliction in this world without its twin and with illness was given to Philips a love for reading, and taste for the poetry of Milton. The style of this great poet imitate; and even before he passed from Winchester, in 1694, rch, Oxford, he was a successful imitator of his chosen master. edily attained pre-eminence, and was as much beloved for and gentle raillery, which never degenerated into coarseness, cellence of his public performances. At Christchurch, as at he seems to have been fortunate in an indulgent master; for h, the head of Christchurch, must have been no disciplinarian not have endured the cool impertinence of the two students l whether the Dean abstained from smoking even at ten in . Admitted to his study, and announcing the occasion of so , he decided, in perfect good humour, that he who had the affirmative had lost, for, replied the Dean, "you see, I am not smoking, but filling my pipe." Philips was not less vith the Dean for being a smoker too; but Philips had the plea, that it was an alleviation of his pulmonary disease, or, es it in poetical verbiage,—

Nature's choice gift, whose acrimonious fume
Extracts superfluous juices, and refines
The blood distemper'd from its noxious salts."

der, therefore, that he fell in with the general taste, and sing the praises of "the Indian weed" in more than one of actions. Even his *Splendid Shilling*—the most popular of wes some part of its attraction to the happy introduction of ipe. This was the first of his published poems, and was '00, being succeeded by *Blenheim* in 1705, and *Cyder* in the ig. With a notice of the last we shall alone occupy our poem is written in Miltonian blank verse, which verse we ught to admire more than rhyme, because this is

" At best a crutch that lifts the weak along,
Supports the feeble, but retards the strong."

may, *Cyder* continued long to be read and loudly praised, adable, not only because it tells of country manners a century use it is grounded on truth. Dr. Johnson says, "I was ler, the great gardener and botanist, that there were more n on the same subject in prose which do not contain so much poem." This is but negative praise, yet it deserves none e. We will give a few extracts, that our readers may form a r themselves.

He thus describes the *soil* suitable to the apple:—

" Whoe'er expects his lab'ring trees should bend
With fruitage, and a kindly harvest yield,
Be this his first concern; to find a tract
Impervious to the winds, begirt with hills
That intercept the *Hyperborean* blasts
Tempestuous, and cold *Eurus'* nipping force,
Noxious to feeble buds: but to the west
Let him free entrance grant, let *Zephyrs* bland
Administer their tepid genial airs;
Naught fear he from the west, whose gentle warmth
Discloses well the earth's all-teeming womb,
Invigorating tender seeds: whose breath
Nurtures the Orange, and the Citron groves,
Hesperian fruits, and wafts their odors sweet
Wide thro' the air, and distant shores perfumes.
Nor only do the hills exclude the winds:
But when the blackning clouds in sprinkling show'rs
Distil, from the high summits down the rain
Runs trickling; with the fertile moisture cheer'd,
The orchats smile; joyous the farmers see
Their thriving plants, and bless the heav'nly dew.
Next let the planter, with discretion meet,
The force and genius of each soil explore;
To what adapted, what it shuns averse:
Without this necessary care, in vain
He hopes an apple-vintage, and invokes
Pomona's aid in vain. The miry fields,
Rejoicing in rich mold, most ample fruit
Of beauteous form produce; pleasing to sight,
But to the tongue inelegant and flat.
So nature has decreed; so oft we see
Men passing fair, in outward lineaments
Elaborate; less, inwardly, exact.
Nor from the sable ground expect success,
Nor from cretaceous, stubborn and jejune:
The Must, of pallid hue, declares the soil
Devoid of spirit; wretched he, that quaffs
Such whcyish liquors; oft with cholic pangs,
With pungent cholic pangs distress'd he'll roar,
And toss, and turn, and curse th' unwholsome draught.
But, farmer, look, where full-ear'd sheaves of rye
Grow wavy on the tilth, that soil select
For apples; thence thy industry shall gain
Ten-fold reward; thy garners, thence with store
Surcharg'd, shall burst; thy press with purest juice
Shall flow, which, in revolving years, may try
Thy feeble feet, and bind thy falt'ring tongue."

Of the benefits derived from *watering* orchards he thus speaks:—

" Th' industrious, when the sun in *Leo* rides,
And darts his sultriest beams, portending drought,
Forgets not at the foot of ev'ry plant
To sink a circling trench, and daily pour
A just supply of alimental streams,
Exhausted sap recruiting; else false hopes
He cherishes, nor will his fruit expect
Th' autumnal season, but, in summer's pride,
When other orchats smile abortive fail."

Of *thinning* the young fruit he is particularly urgent:—

" When swelling buds their od'rous foliage shed,
And gently harden into fruit, the wise
Spare not the little offsprings, if they grow
Redundant; but the thronging clusters thin
By kind avulsion: else the starv'ling brood,
Void of sufficient sustenance, will yield
A slender autumn, which the niggard soul
Too late shall weep, and curse his thrifty hand,
That would not timely ease the pond'rous boughs."

Lastly, we will quote his enumeration of the *varieties* most favoured in those days by the cider-orchardists of Hereford:—

" The Pippin burnisht o'er with gold, the Moyle
Of sweetest honey'd taste, the fair Permain,
Temper'd, like comliest nymph, with red and white.
Salopian acres flourish with a growth
Peculiar, styl'd the *Oldley*: be thou first
This Apple to transplant, if to the name
Its merit answers, no where shalt thou find
A wine more priz'd, or laudable of taste.
Nor does the *Eliot* least deserve thy care,
Nor John-Apple, whose wither'd rind, intrencht
With many a furrow, aptly represents
Decrepid age, nor that from *Harvey* nam'd,
Quick-relishing: why should we sing the Thrift,

Codling, or Pomroy, or of pimpled coat
The Russet, or the Cata-Head's weighty orb,
Enormous in it's growth, for various use
Tho' these are meet, tho' after full repast
Are oft requir'd, and crown the rich desert?
Let every tree in every garden own
The Red-streak as supreme, whose pulpous fruit
With gold irradiate, and vermilion shines
Tempting, not fatal, as the birth of that
Primæval interdicted plant, that won
Fond *Eve* in hapless hour to taste, and die."

The period had now arrived for the poet to cease from his labours. He was purposing to write a poem upon the Resurrection and the Day of Judgment; but he was taken away from his purpose to appreciate in another existence how impossible it is for mortal pen to describe what "it hath not entered into the heart of man to conceive." He had been long troubled with a lingering consumption, attended with asthma, but without a symptom of discontent or uneasiness; and disease now bowed down his strength. By the advice of his physicians, he went to Bath the summer before his death; and the falsely flattering disorder somewhat intermitted. He then removed to Hereford, where his mother was a resident; but the disease returned more severely, and here the period to his life arrived on the 15th of February, 1708. He lies interred in the cathedral, with a Latin inscription over his grave, which had been much better if it told us in honest English that a sorrowing mother recorded there the worth of the son who had preceded her.

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, it is found that the average highest and lowest temperatures of these days are 45.8° and 31.4°, respectively. The lowest cold observed was 16° on the 18th in 1845. Rain fell on 63 days, and 105 were fine.

NOTHING is so vile or so worthless as to be incapable of a profitable use when man's mind is once devoted to ascertain its qualities; not a single part of that weed, the Nettle, but is used for food, or clothing, or dyeing; even the sand of one of our rivers supplies the world with Bath bricks;* old bones form one of our cultivator's best fertilizers; old rags, if woollen, are the enrichers of our hop grounds; and if linen, are the raw material of which our writing paper is fabricated.

We have been led into these remarks by the fact that the *Prize for the best Rustic Baskets*, offered by Mr. Savage in our 4th volume, page 44, has been awarded to some made of the cones of the Larch. The maker is MR. H. HOWLETT, *Gardener at St. Osyth's Priory, near Colchester;* and they are so unique and handsome, of that subdued brown which harmonises so well with all flowers and foliage, and are so suitable either for the sitting-room and entrance hall, or for the plant house, that we are quite sure if he makes arrangements to supply customers, he will have a large demand. They are hextagonal, 6-sided, for standing on a table or shelf, and with chains to suspend from the roof; or half-hextagonal, with chains to suspend against a wall. The chains are formed of the larch cones joined end to end, terminating in a bow also of cones; and the basket or vase for enclosing the flower-pot is covered artistically with similar cones, their small ends pointing outwards. For orchids, trailers, and other plants in pots that look to most advantage suspended from the roof, these rustic baskets are the most appropriate of any we have seen; but larger baskets might be similarly made, and would be most effective for plants on lawns. We recommend our readers attention to them particularly.

GARDENING GOSSIP.

WE have seen (February 3rd), in all the simplicity and beauty of open air culture, side by side, two of the most lovely harbingers of spring—the *Scilla Siberica* (Siberian Squill) and the *Snowdrop;* something before their time it is true, and only stray blooms in a warm corner; but the *Scilla* is not known as it ought to be, for it is the most brilliant of all the spring hardy flowers. The bright blue racemes are most beautiful, and grow no higher than the snowdrop, than which they are far more effective, independently of their colour; for they have a spike of two or three flowers to each stem, and a patch of them is really striking. There are several varieties of the *Scilla*, some with white flowers; but we can hardly say too much in favour of the *S. Siberica;* which, however, is catalogued at sixpence a root; a large price, perhaps, for a bulb not larger than a good sized nut; and we cannot but think that the cost alone must have prevented it from being generally cultivated.

The report of the *South London Floricultural Society* demonstrates, that some change is required to increase its income. It exhibits a deficiency of thirty-six pounds. It will be found in time, that the tax on "non-members," as they are called, from whom large fees are demanded for the privilege of showing, will always keep the shows inferior to those of the Botanical and Horticultural Societies at which anybody who happens to possess rare plants in perfection may attend and exhibit them, without paying for the privilege, or being a subscriber to the funds.

Oldham is one of the head-quarters of floriculture. At their last annual dinner, held at the Crown and Anchor Inn, Mr. G. B. Neild, the chairman, in the name of the Oldham Society, presented Mr. John Slater, of Cheetham Hill, with a piece of plate, as a mark of respect for his persevering exertions in promoting the science. The chairman in congratulating the meeting on the success of the society said, that of upwards of *two hundred cottage gardeners* who were members, there was not a single defaulter. Mr. Slater, who is one of the most energetic florists in the north, returned thanks in suitable terms; for he is a warm-hearted as well as a warm-headed florist.

At several of the meetings of horticultural societies for the preparation of their *schedules of prizes*, it has been unanimously resolved not only that the prizes for flowers shall be awarded according to their merits, by the rules laid down in Glenny's *Properties of Flowers and Plants*, but that such conditions shall be published in the schedules, that both judges and shewers shall know by what tests the productions are to be tried.

Complaints have been very general that for the last two or three years spurious seeds have been too generally sold for *the Walcheren Brocoli*, and it has been difficult to obtain any that can be depended on. It is

* At a philosophical lecture at Taunton on the deposits of the river Parrett, it was stated there were made from them 8,000,000 bricks every year, the value of which at present amounted to £12,000 or £13,000. The number of persons employed is very great. Sometimes a man, his wife, and four or five children, are kept at work at one moulding, and thus they could often get as much as £2 in one week. This deposit is not found anywhere in the world besides, so that Bridgewater has to furnish the whole world with it; and it is remarkable that these "Bath bricks" are just as well known in China as in England. They are known in India and all over the world.

to be wished that those who deal in seeds would consider well, that a gardener who is disappointed receives a very great injury. It would be far more honourable for a seedsman to say that he had none he can depend upon, because a gardener could then have some other kind.

The *Society for the Promotion of Floriculture*, one branch meeting at Kingsland and the other in the City, had some hundreds of new flowers and plants exhibited for certificates during the last year, but did not grant in the whole half a dozen. This check upon the issue of worthless novelties has been of the greatest service to amateur purchasers, who have been preyed upon by dealers in new flowers at great prices, that have turned out good for nothing, until confidence had been all but destroyed. The productions are not judged by the members, but each branch elects six judges by ballot, and the twelve form a board, of which three form a quorum; and to those judges who may happen to be present are all novelties submitted. The consequence is, that if a plant, or flower, obtains a first class certificate, it may be relied on by any amateur as an advance upon the best we have already.

The Annual *Dahlia Show*, which has taken place in or near London for many years under one direction, and which has for a considerable time settled the fate of seedlings, is likely to be transferred to other hands—and report says to Notting Hill, where it will be held upon an extensive scale, under the auspices of several well-known patrons of the flower. We hope they will secure proper judges, for the awards at many of the dahlia meetings have been very unsatisfactory.

The cultivators of the dahlia are beginning to propagate their favourite varieties, and making up their notes for ordering new ones. Those who wish to add to the beauty of their garden collection, will find but few really novel colours; and the best formed ones are, one and all, uncertain. The most striking colours are, *Baltic*, a rich golden buff; *Queen of Fairies*, a singularly beautiful white, with a lavender or rosy lilac spot. Neither of these are of first-rate form, but very beautiful in colour. Two rival whites, *Queen of the West* and *Bar-maid*, are fine models, but not very certain; the former will be rather thin for the late season of showing; and the latter has a thin green scale in the centre, but occasionally comes without it. *Admiral* is a fine rosy lilac, something like very fine blooms of *Fearless*, *Duke of Cambridge*, and *Queen of Lilacs*, apparently constant; but as the advertisements appear, we shall notice all that have been publicly exhibited.

Mr. Rendle, of Plymouth, has formed his grounds into regular horticultural gardens, and offered them to the Royal Devon Horticultural Society upon conditions, which, after a warm discussion, have been rejected. This has led to one of those unfortunate differences which end in the establishment of rival societies. A public meeting has been held for the purpose of forming a new, or "*South Devon Horticultural Society*," in connection with the new gardens, and a committee has been appointed to carry out the design. A number of the resident gentry having entered their names as subscribers.

The most persevering and, perhaps, most fortunate raiser of the *Verbena*, Mr. George Smith, has this year produced some half dozen novelties, which are an advance upon the varieties now in cultivation. Three we have noticed in fine condition publicly exhibited—*Exquisite*, *Enchantress*, and *Shylock*; *Othello* and *British Queen* we saw out of condition, but apparently little inferior. The first three have been universally admired.

Balsams are, it seems, to be a leading feature at many of the country exhibitions; and we are glad to see plants, which contribute so greatly to the brilliancy of a show, when well grown and of good sorts, brought into greater notice. There was a time when the balsam used to excite the skill and attention of the gardener; and these qualities in the cultivator were almost measured by the manner in which he would produce them. But if the societies wish to encourage general competition, they should attach the conditions to the competition, and give the growers some notion of the properties they intend to consider perfection. For instance, the size of the pots must be limited, say six, seven, eight, or nine inches in diameter; or say pots twenty-four to the cast; then the breadth or shrubbiness of the plant; the doubleness of the flower; the quantity and closeness of the blooms; the contrast of the colours; are all qualities which should be specified in the schedule; because last season, at most of the shows, the judges had to decide upon plants of all sizes and conditions; some were all four or six of a colour; some well grown plants, with worthless semi-double flowers; some past bloom, and others not come into flower. We shall be glad to see *the balsam* brought into general cultivation; it is the most noble of all annuals; requires great care to produce it fine and shrubby, and good seed is most essential. The antiquated notion that new seed is not so good as old, has been exploded; because Balsams were produced last year as fine as they could be from seed saved the year before.—E. Y.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

SULPHUR-FLOWERED FRANCIS'S ECHITES (*Echites Franciscea*, var. *Floribus sulphureis*).—*Botanical Magazine*, t. 4547.—This is a genus of very interesting stove climbers, which has a wide range in the East and West Indies and in South America, climbing up trees, which they embrace in coils with their smooth stems, and the young wood often streaked with different hues giving them much of the resemblance of huge serpents; hence the name from *echis*, a viper. In almost all our catalogues, the origin of this family name is attributed to Linnæus, but the true author of it was Patrick Browne, an Irish botanist, who wrote the *Civil and Natural History of Jamaica*, published in London in 1756. *Echites* belongs to the Natural Order *Dogbanes* (Apocynaceæ), a large order, remarkable alike for plants bearing large showy flowers abundantly and produced chiefly on the wood of the same season's growth; and also for the venomous or acrid qualities of their milky juice. The

nearest affinity of *Echites* is the now well known *Mandevilla*, and both belong to the first order of the fifth

class of the Linnæan system, 5-*Pentandria* 1-*Monogynia*, and to the natural group called Contortæ by the illustrious Swede.

Most gardeners appreciate the system of grafting tender or delicate plants on others that are more hardy in their constitution, either in the stove or in the orchard—and here is a case in point for immediate experiments. The roots of *Mandevilla* are acknowledged to be all but hardy with us in dry soils, and in the consecutive arrangements of the most scientific botanists, the Mandevilla itself is the next genus to Echites; therefore, without the test of actual experience, we cannot imagine any natural difficulty that forbids the union of members of the two families, by grafting or inarching; consequently, our more practical brethren will look on the suggestions of the biographer with the more confidence; and whether they succeed or not in this instance before us, sure we are that the Editor will gladly accept of their accounts for the use and guidance of his readers. Experience has, long since, silenced all disputes and cavils about the feasibility and advantages of such experiments. Some years ago we were engaged in experiments of this nature, with the view of getting a more satisfactory answer of the question—has a grafted plant any influence over the stock on which it is made to grow? We selected a number of variegated plants both for grafts and also for stocks. The issue remains yet undecided. Our line of reasoning took the following directions:—After the lapse of a few years, the grafted parts were to be suddenly cut off a short time before the growth of the season was completed, when the stock might reasonably be expected to make an effort to further growth, but yet too languid for the display of its natural strength. Thus we have often imagined that a weakness, or disease, or whatever else may have caused plants originally to become variegated, might be induced by this process to continue to do so artificially; that a young growth from a green stock, under th periment, might show a disposition to variegation, the sap of the variegated plant just removed. Here is a new field for the ingenuity of amateurs and deners, for or against which science does not offe encouragement or opposition. We have been les tunate than gardeners, in so far as that we have not able to cause a union to be effected between a green *Pelargonium* and a variegated one; and ye made more than half a dozen attempts both at inarc and grafting, without being in the least degree suc ful. We would, therefore, be much indebted to reader of this work who shall give a minute descri of a successful plan for *grafting the Pelargonium*, st more particularly the proper season, or the right of growth, necessary for the plants to be in at the of trying the experiment, as we more than suspect we made choice of the wrong time in the growth o plants operated upon. Returning to the subject o present biography, let us observe that it may be n sary to use some caution in thus operating with *Echites*, as the milky juice of the whole order is suspected as very acrid, if not altogether poisono some constitutions; a drop of it falling on a r wound by the budding knife would be most danger

The present variety of *Echites Franciscea* was se 1849, to Kew, from the Garden of Plants at Paris described as a native of Brazil. It is a stove t and easily cultivated either in a trellised pot or pl in the border of the house, and trained up a w pillar.

CHAFFY-FLOWERED PRICKLY THRIFT (*Acanth glumaceum*).—*Gardeners' Magazine of Botany*, ii. This is a name of recent manufacture by Bos Decandolle's Prodromus; we need not trace it f However, we place it at once as a synonym, or *a Statice*, or Thrift, and a very pretty little Thrif with a rosy pink blossom. We saw the plant in

in a greenhouse with Cape Pelargoniums, at the Kew Gardens last summer, and being new to us, we made a hasty examination of it, and notwithstanding the authority of the *Prodromus*, we hesitate not to assert the impossibility of establishing it as a legitimate genus. Nevertheless, we would recommend it as a fit associate for a few Styleworts *(Stylidium)* in the window ledge of the cottage, having much the same habit of plant, and style of flowering on short rigid stalks, which end and flower in a spike, the individual flowers arising from a glume or chaffy scale with which the flowering parts are thickly set, keeping the calyx out of view within their embrace. We have not heard by whom it was introduced, or from what country, but from the name it bears in nursery gardens, *Statice Arrarati*, it may have been found on that mount, and, for aught that we know, have been amongst the first flowering plants which gladdened the eyes of Noah after the deluge. Whether that be so or not, the plant is of that class called alpines, and we believe hardy enough to live out a few years on dry rock-work; but even with some advantages in site and aspect, rock plants or alpines never make more than a few years stay with us; therefore, we would advise this new plant and candidate for rockeries to be kept in a little pot full of some porous earth, and to be chiefly increased by seeds, which it will ripen quite freely, if it is grown in a pot, as we ourselves can testify from the plant we examined at Kew.

There is a very faithful coloured plate of it given in *The Gardeners' Magazine of Botany*, a work so far in advance of all that relates to practice and high art, that it seems hardly necessary to point to it as a standard authority. *Acantholimon*, or, in truth, *Statice glumaceum*, belongs to the Natural Order of *Leadworts* (Plumbaginaceæ), and to 5-*Pentandria* 1-*Monogynia* of the Linnæan arrangement. It has been cultivated in the vicinity of London for at least five years. *Branches*, naked at bottom with leaves bending back at top; yearling shoots diamond-shaped, leaves crowded. *Leaves*, equal, prickle-pointed, lowest flat, upper three-sided. *Flower-stem*, downy, flowers in two ranks in flattened spikes of seven or nine florets; bracts broad, longer than calyx-tube; limbs of calyx without a prickle, marked with blackish veins.

We may conclude by observing that *Statice* is derived from the Greek *statizo*, to detain, alluding to the utility of this plant in holding together sandy soil. *Thrift*, the English name, alludes to its hardy nature, no highland nor lowland, no exposed sand, nor enclosed city garden bring death to it. In the time of Queen Elizabeth, Gerarde tells us "it serveth very fitly" for edgings, and it was then known also as Lady's Cushion, and Sea Gilloflower. B. J.

THE FRUIT-GARDEN.

FORMATION OF FRUIT AND KITCHEN-GARDENS.

(*Continued from page* 146.)

IN order to understand this subject in all its bearings, our readers will do well to turn back to page 146, and observe the proposed order of the subject. It was there remarked, that in consequence of the varying circumstances of families, no *one rule* can easily be laid down for planting kitchen-gardens with fruit-trees, inasmuch as one family requires early fruit, others the reverse. Thus it seems necessary in advising on this head to avoid the extremes, and to shape our observations to what may be considered the generality of cases, those in which the proprietor desires a constant and well planned succession of the best fruits at every season.

We are now about to show how a kitchen-garden may be established without cropping the borders with vegetables, and this, in order that the roots of every fruit-tree therein may receive culture of a *special* character when necessary; as, also, that general principles may be carried out at all seasons without hindrance; for such must ever occur when the borders contain other crops; and it is not too much to affirm, that the greatest portion of the ill-success so frequently complained of, has arisen from unworthy compromises, forced on the cultivator by the injudicious cropping alluded to.

As general principles, applicable in common to the roots of most trees, we may mention top-dressings, mulchings, &c., the former being chiefly the application of good soils or composts on certain occasions. As special ones, root-pruning instantly presents itself, and, indeed, the application of particular manures or composts, besides other matters equally important—such as watering in droughts, &c. Now, these things, we repeat, cannot be carried out with certainty and facility by the old system.

Let it be understood at once, that the remarks which follow have particular reference to a dwarfing system; the ordinary orchard standard we have nothing to do with at present. We, therefore, have to urge the use of trellises, especially for small gardens, as producing less shade to the adjoining borders; as insuring an earlier fruitfulness; as enabling the proprietor to indulge in a greater amount of good fruits; and, finally, as being a source of much pleasure to those who feel an interest in horticultural affairs, and who have occasionally to perform the manual operations with their own hands.

TRELLISES.—This understood, we come to the character and form of trellises, and these are various. The following are the principal at present in vogue:—The Perpendicular Espalier Rail. The Horizontal or Table Trellis. The Saddle Trellis. The Inclined Trellis. The Trellis Arcade. Others may be suggested, but these are the principal, and we will give a brief description of each before proceeding farther.

THE PERPENDICULAR ESPALIER RAIL.—This being well known, needs little description. It is generally about five feet in height, and composed of parallel rods running in a horizontal form at about five or six inches apart. Such may be found in many of the old gardens of the nobility; and when established on sound principles, are well adapted for most fruits, especially for apples. Some of the cherries, too, such as those of the Bigarreau section, and some coarse wooded pears, which are rather unmanageable under a more prim mode of training, may well find a place here.

THE HORIZONTAL OR TABLE TRELLIS.—This is well represented by an ordinary iron field hurdle thrown into a horizontal form, and supported a foot above the ground at each corner by some means. We have used these for some years, and find them well adapted for our more tender pears. Almost all our more delicate-wooded fruits would succeed on them. The cross bars should, if possible, run only north and south.

THE SADDLE TRELLIS.—These are in extensive use in Her Majesty the Queen's gardens at Frogmore, and are a very useful form of trellis. They are generally about four feet high at the centre of the curve, and the training bars are carried to within a foot or so of the ground.

They are very well adapted for most fruits, but we decidedly object to their being placed in the direction of east to west, for they thus produce a northern side to train on, which is of little use.

THE INCLINED TRELLIS.—This form is not quite so often met with, and we wonder why. We shall, however, have to suggest a use for it shortly. Its title points to its character: it is, in fact, neither more nor less than the table trellis made to slope to the solar rays. For this purpose, we would have the front as low as possible—about six inches above the ground level, and rising to about thirty inches at back. This is the trellis that we intend to recommend for all south borders *on the wall side* of the walks; and when these are once well understood, they will go far to obviate many difficulties in the way of fruit culture, now the subject of so much complaint.

THE TRELLIS ARCADE.—This may be considered more in the light of an ornamental appendage to a garden than as facilitating the maturation of our tender fruits. Such we suggested as a very eligible mode in ordinary gardens of forming a transition link between the dress and the kitchen-gardens. They must be six feet in height at the sides before the curve springs, and must have some parallel rods of strained wire, as the other trellises. The sides may be arched in a scolloped manner, thus permitting an agreeable peep at the flowers, unless any disagreeable objects are to be shut out, when they may be of close work.

Having now fairly opened the question as to the disposal of our various hardy fruits in the kitchen-garden, we must beg to offer an opinion as to aspects, and, indeed, choice of kinds.

It will be remembered, that these suggestions are based on the principle, that the proper culture of fruits ought to proceed in such a way as to be totally unfettered by mere vegetable culture; and we here repeat the opinion, that any admixture of these objects will ever, in a great degree, defeat the end in view; and if we may hazard an opinion, it is that the production of superior hardy fruits will ere long attain a position hitherto deemed visionary; but we live in expectant times.

Let us commence by supposing the kitchen-garden all in one—a square or parallelogram; and that the walls, as usual, possess borders; next a walk; and then on the other side of the walk a marginal border for dwarf fruits. We will not affirm that this arrangement is the *only* good one; but until we get a better it is really a very good one, for several reasons. Still, we must suppose that there are "slips," for few would like to throw away the advantages of such an expensive thing as a wall. If we had the disposal of such matters, we would make it an indispensable condition with the "schemer" that both sides of every wall should, as far as possible, be made available for the training of fruit-trees.

Having established our claims to a "slip," we would fain beg a marginal border for some *standard* fruit-trees, which, as before observed, might readily be made subservient in effect to the decorative portion of the grounds exteriorily.

This form [illegible] will thus produce a variety of [illegible] formation [illegible] hedge, thus [illegible]

[illegible] "*aspect*," in gardening [illegible] the position of a wall that is presented [illegible] of the cardinal points. Thus, an east aspect [illegible] east side of a wall, which runs north and south; also of every other point.

In treating of the walls, then, we must use the term "aspect:" this alone will point out the wall-trees from the border-trees.

This brings us to the trellises again, and the disposal of them. The garden being square or a parallelogram, we would carry a walk of some five feet in width all round the exterior, and two others crossing each other at right angles in the centre of the garden. This will, of course, throw the garden into four equal quarters or squares. We would carry our marginal borders all round every square; but along those which intersect each other at right angles in the centre, we would plant the bush fruit, dwarf nuts, &c.

This arrangement will, of course, force all the apples, pears, plums, cherries, &c., which were to be grown *away from the walls*, all round the exterior. In larger gardens it is usual to have a capacious walk, cleaving the garden into two equal divisions. This generally communicates at one end with the mansion itself, or with some portion of the grounds which forms a connecting link between the "utile and the dulce." Such adds great dignity to the garden; and in such a case we would introduce the perpendicular espalier rail down each side. The whole interior arrangement might then stand thus:—

PRINCIPAL CENTRAL WALK, perpendicular espalier rail.

MARGINAL BORDERS, NORTH TO SOUTH, the saddle trellis.

MARGINAL BORDERS, EAST TO WEST, the table trellis.

SOUTH WALL BORDERS, the inclined trellis.

EAST AND WEST WALL BORDERS, the table trellis.

SUBORDINATE WALKS, margin of bush fruit.

SLIP, pyramids and standards.

Having thus delivered our views on the general disposal of trellises in the kitchen-garden, we must proceed in a future paper to point to the best kinds of fruit, and to show their adaptation to the various situations and aspects. In doing so, as gardens vary so much in size and character, we cannot assume specifically to direct the proportions, as to number, of each; but merely show how kinds of well-known merits ought to be disposed of; and in so doing we shall suggest every kind worthy of notice, irrespective of novelty. New kinds must by all means receive a marked attention; but in small gardens, it behoves the planter to secure all truly good old kinds first.

There is, assuredly, a safer ground of success in improved cultural practices than in a mere hunt after novelty; and we would fain direct our humble efforts mainly to the promotion of the former, but by no means to the utter exclusion of the latter. Our readers may rest assured that hardy fruit culture is still much in arrears. Would that we could persuade our great show managers to bend a little more to the shrine of Pomona; for assuredly, the devotees at the shrine of Flora have been much more assiduous in their devotions of late years. We have no fear, however, but that our favourite goddess will yet "have her day." R. ERRINGTON.

THE FLOWER-GARDEN.

BEDDING PLANTS.—Among the very first plants for the ensuing season, let us make a strong effort to get a bed, if ever so small, of the *White Campanula carpatica*. If you once get it to flower, nothing but some great accident or misfortune can drive it away from the place. It is as hardy as the common daisy, and will increase from the roots as freely as some people say spear grass or couch grass will do, although I believe that no kind of grass can be increased by its roots. At first, when one has but a small plant to begin with, it should now be in a warm place, and as soon as an inch of young

is made, it is ready for a cutting, and the cutting ɔt nearly as fast as one of a verbena under the ght; and cuttings of it made to the end of April, wer the same season. I am not sure if it has with any one yet, and if it has, I would not put aith in the seeds until I proved them, as it is itself ı accidental sport from the blue one. The *blue* one, *panula carpatica*, ought also to be in every flower- . There is no more trouble with that either, than daisy. Seeds of it sown any time next March, ated as they ought, will flower from the middle of ; till the frost; and old plants of it taken up on a y at the end of February, put by in the potting- ıtil the first rainy day, then divided into little and put in a basket, will be ready to plant out he first fine day comes; and if the end of April, month of May be very dry, the bed or rows ought ·atered, and they would be in flower early in June, ıtinue so until the seedlings were fit to take their

But to have them in bloom from the first of October, about the second week in April is the me to take up old plants of them for dividing. xed beds or borders, some of the old plants should disturbed, as these would come in earlier than nsplanted ones, and, of course, would be over ıarlier in proportion. It is very singular, but it ıinly a fact, that many, or say all the summer- ng herbaceous plants which creep about by their ır by stolons, which are underground branches ɔt true roots, will flower from twice to four times ıatural time, or usual length of time, if they are ıp in the spring before they make much growth, ɔ divided, like as I have just said about these cam- s; and it is as likely as not, that there are many f the *Campanulas* themselves that would yield a rofit by the same treatment. We only use two t present that way, the *carpatica*, and the much · one, *pumila*, both blue, and both having white ɔs. There is another nice one as small as *pumila*, much larger flower, which is called *pulla*, and of .er sorts there is no end to them.

'e are a great number of hardy plants in the way posites, or with aster-looking flowers; and many n might be had in flower more than double the ime if they were treated after the manner of the nulas. I used to know a great many of these old- .ed plants, and not a bit the worse for being so; forget many of them, as one so seldom meets nything now-a-days which is thought much of, it be new, or recently introduced; but I make no about there being numbers of bedding hardy now neglected in botanic arrangements, or in ery borders, and the hint I wish to convey re- g them is this:—When the borders are having pring dressing, let side pieces from old patches of ɔous plants be divided a little, and reset near to ablished plant or patch, and let them be looked or the rest of the season, and see they have no water, or air, or thinning, or supports, or, indeed, of their needs. Then mark how much longer ill keep in flower than the old plant; that is on ɔposition that they belong to the right section of ɔous for that experiment. Note down the result; .in and again if you should fail in every one in- ; because you did not hit just on the exact way it be done at first. There is not a plant in the garden that I would let pass at the spring dressing t trying some experiment or another with it, so might know as much about it as anybody else, if ɔre. It must be very tiresome to have to send to OTTAGE GARDENER to ask every little thing one like to know about flowers, and, if so, why not try ırn by experiments; which if they do not turn out good, no one need be the wiser; depend on it, the spade, the fork, and the trowel at work on a long border of old plants, could turn up more *facts* than the pen of the best writer amongst us.

Before the spring propagation begins in earnest, we ought to have a clear understanding about the number of plants that we may require of the different varieties, and then to put in a certain per centage of cuttings over and above the actual number of plants required; and this additional stock will vary in different situations. There are kinds of soil in which all the Verbenas, for instance, will grow away as fast as possible as soon as they are let free into the beds; and in other soils many of them will stand still, as it were, for a while, without moving or making a single additional leaf, and, therefore, are more liable to mishaps; and it is the same with almost all the plants in use. Some do well, and some do not: and what succeeds best in one place may be the most difficult to get established a mile off. Nothing short of actual practice, therefore, can determine how many of this or that kind of plant one ought to have for a given bed. The best rule is to have plenty at any rate. Except in the neighbourhood of London, I have not seen for many years how flower beds are first planted; but there, I think, I have seen the two extremes; that is, the soil in the beds almost hidden the first day of planting, or so thinly furnished that it takes five or six weeks before the beds are full. I hold with thick planting, if I had to pull out some of the plants soon afterwards. Where the stock is limited, or the means of providing it are on a narrow scale, I know of no better way than that of transplanting *annuals* in the intermediate spaces between the permanent plants, as I have often recommended; and this is just the time to think of all this. Sow lots of them here and there, or anywhere, in the shrubbery borders and other places, and if the half of them do well, what an advantage it will be next May at planting-out time, if you should happen to come too short of anything; or say, that a number of new plants are just come home to be propagated from; it may be the first of May before a proper stock is obtained from some of them, and the end of the month ere they are sufficiently hardened for planting out, without something to take their places. All this time, what are we to do but wish that we had thought of all this in time. "Here is a long narrow bed, or small circle, and from what I have read about the *White Campanula carpatica* in the COTTAGE GARDENER, I have resolved to have it planted this season with that very plant. I have just bought a couple of nice plants of it, which they say may be increased from cuttings as fast as Verbenas." But somehow or other, let us suppose, the plants are not strong enough to turn out till the end of May; but that all this was seen at the end of April; and having a stock of early spring-sown annuals to take our choice from, the difficulty is got over at once. We can even keep to the colour. *White Virginian Stock* just opening its first flowers will do; the white with dark spots, *Nemophila maculata*, the same; *Navel-wort* also; or *White Candy tuft* from seed self-sown last autumn; any of these will bloom in May, and as soon as they appear to fade, pull them up and put in the *Campanula*, and so on with many, many other plants and beds.

If *Sweet peas* cannot be forced a little like kitchen-garden peas for an early crop, put in a row of it immediately for early bouquets. *Cornflowers* are extremely pretty in bouquets, and you cannot have them too early or too late. Make a sowing of them also without delay. The book name for the best two kinds of them is *Centaurea Cyanus*, this is the sky blue one; and *C. depressa* is a different blue, with purple or red bottoms to the florets; and there are two more shades of these—one with a speckled flower much lighter than the blues, and one pure white. These are the four fit for bouquets; but there is no end to their variations. These simple

flowers are exquisite for shading a circular bouquet. *Sweet scabious* is the best for a centre to a Cornflower bouquet; sow a row of them at the same time. There is no end to their varieties, if one could but get them; try a packet or two of "mixed sweet scabious." I once picked twenty-nine shades of colour from a bed of them, and stuck them in a border in one continuous row, beginning with the whitest, and so on up to the darkest I could find. I did the same with Cornflowers in front of them, but only seven or eight shades. That very morning I took up a fancy—an odd fancy I own—which may as well get wings as be caged any longer. It is this, that ladies should select the colours of the flowers used for their bouquets to suit the prevailing colour of their dresses. This might be done during the summer, and I am quite sure there is more philosophy in the thing than most of us are aware of. If it is worth while to carry bunches of flowers at all, surely there can be no great harm if they are used to some purpose; at present bouquets are made at mere random, like the old way of planting "herbaceous plants,"—no contrast, no harmony, no nothing-at-all, compared to what they will be by and bye, and what they now are in some few places. Who will help me to sow and plant all the best bouquet flowers for a whole season? D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

HOT-BEDS FOR CUTTINGS: SOWING SEEDS, &c.—We are very apt to undervalue a species of knowledge merely because we ourselves are familiar with its principles. Did we only accustom ourselves to look backward as well as forwards, we would note many modes of action now clear and distinct that formerly, to our minds, were confused and unintelligible. The greatest truths are extremely simple, but that simplicity is apparent *only* after they are known. To many of the readers of this work anything upon *hot-beds* will appear superfluous, because they will have digested and practised the directions previously given. And yet among new readers, and especially the cottage and window garden portion of them, almost everything about a hot-bed, and the management of fermenting material, is a matter of mystery and hap-hazard. Amongst young amateurs generally there are few things more mortifying than want of success in this department. With many minds the idea of a hot-bed is associated with vigour and luxuriance in vegetation in all circumstances. Hence plants are sometimes subjected to heat only to be rendered weak and enervated. The giving of one of our hardy plants hot-bed treatment is just as preposterous as expecting a shrub from the tropics to flourish on the sides of the Grampians. In all intermediate cases between these extremes heat must be regulated by that which the plant enjoyed in its native locality, or similar results will follow, though not so quickly perceptible. Not so long ago a very knowing person in his way went to the expense of procuring a collection of the finest Calceolarias, about which no small noise was trumpeted. He was to astonish us slow coaches! Extraordinary results he set about accomplishing by extraordinary means. He had a shallow frame at liberty; but too shallow to suit his purpose. Turf-pits had been recommended, and why should he not have one? And the answer to the inquiry was a goodly structure, from two and a half to three feet in height. This pit was filled within with dung and leaves, not much fermented, a few ashes sprinkled over the surface, the frame set on, the Calceolarias placed inside, and the glasses slid down, and kept rather close during the day, and altogether close at night. When air was given, between nine and ten in the morning, the steam rushed out as from a boiling cauldron; and from that day to this our friend is *mum* as respects the results.

The using of hot-beds for cuttings must be attended by regulating the heat and other circumstances to the nature of the plant, or almost similar results will follow. I say *almost*, because though this attention to the nature of the plant must be given, still cuttings taken from our plants in windows and greenhouses in spring, intended for balconies or small flower-gardens, will bear, nay, rejoice in an increase of temperature then, for a limited period, which would be ruinous to them at any other time. Hence the making of hot-beds for striking greenhouse and bedding-out plants in summer and autumn, is as unnecessary as the possession of them would be advantageous now. Many cuttings are ruined from the coddling they receive in the propagating department in summer and autumn; and if made into plants a considerable time elapses before they become sturdy in their habits. Many cuttings of window and greenhouse plants that are succulent in their nature, as Geraniums, would do better in summer and autumn in the open border; and others, such as Calceolaria, succeed best in a shady place, with merely a frame or a hand-light placed over them. At that period there is enough heat in the soil to encourage the protrusion of roots, even though the tops of the cuttings should be comparatively cool. Failures in such circumstances are oftener the result of too anxious meddling, must-be-doing carefulness, than of gross inattention; owing chiefly to the fact that the cuttings are so long in striking. I had a fine strike of *Calceolarias* on a north border last autumn, and with little trouble. Light soil was used. Some old trees constituted back, and front, and ends of a shallow pit, just to support some old sashes, laid on without rafters, and which were six or nine inches above the cuttings. They were well watered when inserted, and with the exception of some slight dustings from the syringe in very bright days, they received neither waterings, nor air, nor shading afterwards. Of course air would to a certain extent find its way between the sashes, and between the laps. Before they were all struck, however, required between two and three months time. One advantage of this system was, that though the cuttings were beautifully rooted, they were quite *sturdy* in their habit, having grown upwards little or nothing. It will at once be seen that what was gained here in point of want of trouble, was lost in a great measure in point of *time*. We cannot, by any mode of operation, secure all advantages. By the help of a hot-bed *now*, cuttings of similar soft-wooded things may be easily struck in as many days as these Calceolarias required weeks. The reason of this is obvious. In the autumn, the mother-plant is not so much *growing* as slowly *assimilating* its peculiar secretions.

The same processes must be continued in the case of the cutting, if we wish it to become a sturdy plant for the winter. The attempting to gain time, to hasten the process by placing the cutting in additional heat, even though the hot-bed be sweet and all right, will do no great things in accelerating the formation of roots; but it will be amply effectual in expanding the cutting in an upright direction, at the expense of the organisable matter it formerly contained; and as there is no great time for hardening its constitution, it generally becomes an invalid during the winter, and finally decays as the result of the slightest change—whether arising from cold, from damp, or even from sunshine. When, from various reasons, cuttings are not struck, and yet the autumn is drawing to a close, the pots may be plunged in a slight hot-bed; but the tops should be kept in as cool an atmosphere as possible to be safe. The less expansion upwards the better, because then, size for size, the plant contains more organisable matter to sustain it during the winter.

But *now* circumstances are entirely different. During

'ebruary, March, and onwards, at all times, and more specially after such a dull, mild winter, do what we an with our plants in windows, greenhouses, and cold its, we cannot keep them from growing. The expanding principle is contending, and but too successfully, specially in dull weather, with the accumulative principle. The stubbiest plant becomes lengthened, the issues are expanded, the hard epidermis becomes soft, and the whole system is teeming with vital excitability. So much is this the case, that at this season there is no necessity for cutting to a joint in making cuttings from the majority of soft-wooded plants, as in favourable circumstances roots are freely protruded from any part of the stem. So much is this the case, that instead of requiring two nodes or joints to make a cutting, our clever amateurs, when it is worth their while, think nothing of splitting each joint into as many divisions as there are buds around it, using the split part of the stem alike for inserting in the soil and protruding roots. But all this could never be effected if any great check was given to vital expansion. Success greatly depends upon increasing the stimulus. No doubt even now our friends may multiply their favourites by inserting cuttings under hand-glasses and bell-glasses, and keeping them in shady places, either in the window or greenhouse; but the result will neither be so certain in the case of soft-wooded plants, nor half so engaging from its quickness as when placed in a sweet moderate hot-bed. There, the excitability already aroused is still farther developed by the increased heat; this heat being made to act more, if possible, upon the part of the cutting embedded in the light porous soil, than the part in the atmosphere; and thus roots are emitted contemporary and often before fresh expansion in upward growth; while the moisture rising from the bed prevents rapid evaporation from the leaves, and the whole medium of the soft spongy cutting is inhaling nourishing gases from the decomposing matter that furnishes the heat. We may praise as we will hot-water tanks, &c., for this purpose; but for all common things, give to us a bed of dung and leaves. Even in that case, however, the assistance of a hot-water pipe to dry up the damp would be desirable. So great is the heat that soft-wooded cuttings will bear in the spring with impunity, that for years I propagated the chief supply for a large flower-garden in the front of frames for early melons and cucumbers, hardening them by degrees until they could stand in the open air. Many of our greatest favourites for this, as well as for window and balcony decoration, that are rather shy to propagate in summer and autumn, are easily propagated now, after fresh growth has commenced, by means of a moderate hot-bed; for the heat in a cucumber box is too high for them, and, consequently, there is a little more care required in hardening them off. So easy is it during the present, the following, and even April months, to propagate, by means of a hot-bed, the various soft-wooded plants used for the above purposes, that I have uniformly recommended those who had little room, to ensure merely a young healthy stock in autumn from which they might propagate to their heart's content in spring. Let us not forget, however, that if we do not obtain this stock in autumn, we shall be rather badly off for cuttings in spring, and thus be forced to borrow and buy instead of having the pleasure of lending and giving. The knowledge, then, that plants are more quickly propagated in spring, will hardly avail you if you have got none to propagate from. A friend once wrote requesting to know whether I could spare him any cuttings of soft-wooded plants,—Verbenas, Calceolarias, Geraniums, &c. This was in September. The reply was, "Yes, a donkey-load, if you please." I heard and saw nothing more of him until the middle of March, when our friend appeared—not with a donkey, but with a pony-cart,—just after almost every plant had been stumped. Though he did not go away quite empty-handed, the lesson was one he never forgot. He found out that though plants propagated in spring required less trouble, that if he neglected to provide a stock in the autumn, he must either buy or condescend to beg at a time when people were not wondrously fond of giving.

I find I have been running on, and yet should like to gossip a little longer. Hot-beds may be divided into the gentle, the moderate, and the strong. By the first is understood such a bed, consisting of from one to one and a half foot of fermenting matter, as is used for setting hand-lights on for the propagation of pinks and carnations, &c.,—the object merely being to present an increase of temperature to the base of the cutting; and by the third is intended such beds as would be suitable for cucumbers and melons, then the second or moderate hot-bed will be a medium between the two, such as in this and the succeeding month will give a bottom-heat of from 60° to 80°, and an atmospheric temperature from 48° to 60°. It is this moderate hot-bed that is most suitable for greenhouse and half-hardy plants that are quickly propagated in spring.

The *materials for a hot-bed* may be varied according to circumstances. There are few gardens, however small, where the means cannot be got for such. All decaying vegetable matter when thrown together will produce heat during its decomposition, if *moisture*, *heat*, and *air* be present. Where dung is not to be had, all vegetable refuse should be kept dry until it is desirable to obtain the heat from its decomposition. Sawdust, with a very little other animal or vegetable matter mixed with it and damped, will give a nice regular heat for some time; the only disadvantage attending its use being its likelihood to cling round the pots and impede their drainage. Fungus substances are also too freely produced. The refuse from flax-mills is also a good medium, and requires little or no previous preparation. Eighteen inches thick will retain a nice heat for a considerable time. Hops from large breweries are also most useful for giving bottom-heat in beds. They merely require to be thrown into a heap to sweeten a little before using. Good oak leaves, well fermented, are the best of all, if it were not for the slugs and creeping things that they contain, which, in a short time, would make sad havoc of the tender cuttings. In using them, as I do, I like previously to give them a good heat by mixing them with stable-dung, turning them together once or twice, and watering only where either seems dry. The more violent they heat at first, the better I like it, as it either kills or flits the slugs, and destroys a great portion of the fungus spawn which is apt to adhere to the leaves. When the condensed moisture is clear as a dew-drop, any vegetation may be trusted with safety. Three parts leaves and one of stable-dung will make a good combination. A bed from eighteen inches to two feet in depth will be sufficient for several courses of cuttings, with, at the most, a turning of the material and a little fresh added at the bottom. In making such beds, I do not like the material to be much decomposed, though sweet, to be very moist, nor yet to be built very firmly together. I want to obtain, and not to give to the open atmosphere, the heat which is the result of decomposition. I want not a scorcher, but a steady heat, and by not squeezing the materials too firmly together, air is enclosed between their particles, and fresh air is always gaining access. If after a time the heat declines, I know it is because the material has become too dry for the air to act upon; and by boring small holes over the bed, and pouring into these hot water, I communicate both air and moisture, and heat is given out as the result of farther decomposition.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

CULTURE OF PASSIFLORAS (*Continued from* p. 272.)

Summer Treatment.—We have so lately given our practice in training creepers, when writing upon Ipomeas and other stove climbers, that we need not repeat it here, as the same principles apply to training the Passion-flower. One particular regarding the fruit of the *Granadilla* it will be as well to mention, and that is, as the fruit is of a considerable size and weight, it is desirable, as a matter of precaution, to support each fruit either with a piece of broad bass mat or tape of a sufficient length. The way to apply it, is to take hold of one end and pass the other over the rod or chain to which the shoot bearing the fruit is attached; bring each end equally down below the fruit, and then cross them over each other, and bring them up on the opposite sides of the fruit, and over the rod, to which it should be securely fastened, leaving sufficient space within this kind of basket to allow the fruit to swell to its full size. Tied up in this way it cannot possibly drop on the ground, even when it falls from the branch after it is fully ripe. This precaution is necessary, because when the fruit is ripe the skin is thin and tender, and if it should fall would burst, and so be unfit for the table.

Water.—During their growing and flowering season, these plants, on account of their rapid growth, require a liberal supply of water, and will be greatly benefitted by copious showers of soft water through the syringe, care being taken not to wet the flowers. As the Granadillas flower, let them be impregnated in the manner described at page 272. Other fruiting kinds do not need artificial setting, but will set and swell their fruit without help. Temperature during summer, 75° by day and 60° by night.

Winter Treatment.—As soon as the blooming season is past, prune the Passion-flowers in very severely, leaving only a young shoot at intervals of a foot or more between each. At the same time reduce the quantity of water greatly, as in this state they do not require stimulating. The syringe may yet be occasionally used to wash the dust off the leaves, and to keep down insects. Neither do they require now so high a temperature—60° by day and 50° by night will be sufficient. Occasionally a few yellow leaves will occur; let them be instantly removed, both for a neat healthy appearance, and to prevent the ill-effects arising from decaying vegetable effluvia, always offensive to the sense of smelling, and to the health of the living leaves.

Propagation: by Cuttings.—The whole of the genus strike easily from cuttings; the young tops make the best cuttings. The material in which to strike them is a compost of peat and loam in equal parts, made very sandy, with a thin layer of pure white sand on the surface of the pots; put the cuttings in round the edge of 5-inch pots, place them upon a heated surface of sand, or plunge them in a bed of tanner's bark, cover them with hand-glasses, and shade from bright sunshine, watering occasionally as they require it. They quickly root, and should then have a little air given them every day for a week or two previously to potting off. As soon as they are a little hardened to bear the morning sun and air, pot them off into small pots, and replace them under the hand-glasses for a week or two, shading them as before till fresh roots are made, then give air and gradually inure them to the full exposure of light and air. They will soon require larger pots, and the season following they will be strong enough to plant out in the places where they are to grow and flower. The smaller growing kinds put into large pots to be trained round a trellis of any shape the cultivator may fancy.

By Seed.—To raise hybrids, it will be necessary to take the pollen or male dust from any kind with superior shape or higher coloured flowers, and place it upon the stigma or female part of the flower of another species possessing some desirable quality. And to make more sure of a new and improved variety, remove the anthers from the mother plant long before they burst with pollen, and cover the flower with a kind of muslin called *leno*, to prevent any officious insect from spoiling the intended effect.

As soon as the seed is perfected, let it be cleansed from the pulp by frequent washings, and place it upon a piece of paper in the sun till it is quite dry, then fold it up in brown paper and keep it in a dry room till spring. Sow it in February or March in a gentle hotbed, in shallow pots filled with the compost suitable for cuttings, and when the seedlings have three or four leaves pot them singly into very small pots; continue them in the hotbed, and repot them when required; grow them on till they flower, and it is more than probable there will be some much improved varieties that will abundantly reward the cultivator for the extra trouble he may bestow upon them. It is not necessary to give to seedlings on trial so much room each as we have described for established desirable species and varieties. Seedlings may be grown in pots comparatively small till they flower, and afterwards such as are decidedly better in quality than their parents may be kept, and every advantage of the best cultivation given to them, so as fully to prove their superiority; and all others that are deficient in such approved qualities should be thrown away. We do not conceive it necessary, except perhaps for nurserymen, to raise seedlings of this tribe of plants merely for the sake of increasing the individual species, because they are so easily increased by cuttings.

Insects.—There is something in the taste and smell of these plants that the generality of insects do not approve of—hence they are comparatively little subject to their attacks. On some of the thinner-leaved varieties and species, the pest almost ever present on all plants, *the red spider*, makes its appearance. Whenever this is the case, immediate and persevering efforts must be resorted to, to destroy it. The best remedy is the old and sure one of washing every leaf, bud, and stem with a sponge dipped frequently in tepid water. This, though a tedious, is a sure remedy. Severe syringing is also a good destructive as well as preventive remedy. It washes off the eggs, and destroys the webs these insects spin to rear their progeny under.

Climbing stove plants have occupied our attention for some time. There are several others we have not yet noticed, which shall appear in our pages very shortly. For the remainder of our space this week we shall draw the attention of our readers to an old fine plant which we have now in flower at Pine Apple Place.

SOLANDRA GRANDIFLORA (Large-flowered S.); Jamaica. 1781. 5s.—Named after Dr. Solander, a celebrated botanist, who accompanied Capt. Cook round the world. It belongs to the Natural Order Solaneæ, an order that contains some beautiful plants, such as Brugmansia, Petunia, Brunsfelsia, and Franciscea. In it are, also, some useful plants, such as the potato, the capsicum, the tomato, and tobacco. All these interesting and useful plants are classed by botanists with the noble *Solandra grandiflora*—and very properly too; for if any of our readers will be at the trouble to compare the flowers of the most dissimilar in point of size, they will find a great similarity in shape and texture.

The flowers of *S. grandiflora* are large and trumpet shaped, of a creamy white colour, and are very deliciously fragrant, yet not overpowering like *Brugmansia suaveolens*. They are what botanists term monopetalous, that is, one-petalled: the tube is a little swelled in the centre, the border spreads out like the mouth of a trumpet; the foliage is large, almost oval-shaped, and of a beautiful

dark green. Altogether it is a very desirable fine plant. The only drawback upon its general cultivation is its shyness to flower, but that defect may be overcome by a method which we shall describe below.

Soil.—This stove shrub being of a woody habit, and very much branched, requires a rather strong soil. Turfy loam of a yellow colour, such as is known about London as the *Norwood loam*, is the best. Mix it with about one-fourth peat, and one-eighth of vegetable mould made with decayed leaves two years old.

Summer Culture.—Supposing the plants have attained the right size to flower, pot them early in March in the above compost, in pots rather small in proportion to the size of the plants. This is to cause a dwarf woody growth. The flowers being produced on short woody branches, water must be given pretty liberally during summer to give strength to the branches. The heat should be during this season 75° by day and 60° by night.

Winter Culture.—In September reduce the quantity of water considerably for the first month, and after that only water once or twice through the winter. The plant will then shed most of its leaves and be in a state of rest, which is the grand secret to cause this fine plant to flower. The essential points to secure that desirable end, are to obtain free growth and plenty of foliage during summer, and a complete rest in winter.

Propagation: by Cuttings.—Half-ripened shoots form the proper cuttings, very young wood being apt to decay immediately in the close confined air and moisture under the bell-glasses. Choose cuttings with the lower portion of them nearly hardened into wood. Fill 5½-inch pots with pure loam made very sandy, and place a layer of pure silver sand upon it one inch deep. Then put in the cuttings with the leaves inclining inwards, so as not to touch the bell-glass when it is fitted on just within the rim of the pot. Place them in heat; if convenient, a tan-bed will be the best, plunging the pots in it level with the rim. The cuttings will take a considerable time to strike, and the glasses must be wiped quite dry every morning. Unless these directions are strictly attended to, no success will attend the operation.

There is another species named *Solandra lævis*, more recently introduced, so named because the leaves are very glossy and smooth. It is quite as handsome as the *S. grandiflora*, and will flower when the plants are young. We have had plants of it in flower not a foot high. 7s. 6d. The same treatment as the preceding species suits it exactly. T. APPLEBY.

FLORISTS' FLOWERS.

AURICULA AND POLYANTHUS.—These lovely spring flowers will now require attention. Let some compost be placed under cover to dry. The best that we know of is made with light loam from an upland pasture one half; decayed leaves (vegetable mould) one quarter; and two-year old cow's or sheep's dung one quarter. Mix these well together with the hand, keeping a strict look out for wire-worms and slugs, and destroying every one as soon as it is found. When the compost is ready, take a few plants out of the frame and set them on the potting-bench, then examine each plant in succession, clear away all decayed leaves, and if there appears to be any worms in the pot, turn the ball carefully out of it, and pick out the worms, replace it equally carefully in the pot, and remove a portion of the top old soil without disturbing any of the roots; replace it with the fresh compost, filling the pot to within half an inch of the top. Press the new soil rather firmly round the stem of each plant. Proceed thus till the whole are finished. Then wash the entire inside of the frame or pit, stages and all. If it is a pit whitewash the walls. Turn the light upside down and wash off all the dirt from the glass. Then give a coating of fresh dry ashes on the surface. Your frame or pit will now be in a clean sweet condition to receive the plants. Give each a gentle watering to settle the fresh top-dressing, and when they are dry replace them in their situation for blooming, giving them the usual attention of protection from frost, air on all favourable occasions, and the due quantity of water. T. APPLEBY.

THE KITCHEN-GARDEN.

THE winter has been thus far remarkably mild and damp, so much so, indeed with us in Devonshire, that many of the beautiful scarlet varieties of Rhododendrons have been for weeks in full bloom in our American garden, and other places, without the least protection of any kind; and so have several varieties of the Camelia, and other spring flowering plants in the flower-garden. Some of the Peach-trees, too, against the open wall are in full bloom, and vegetation of all kinds is in the same forward state. Early Cabbages, planted for coming in in April, are all turned into good firm-hearted Cabbages. Cauliflowers have been abundant all the winter in open quarters; and even a quantity of odds-and-ends of plants, cleared from the seed-beds late in August, which were planted with other things thickly on wheat ground for sheep feed, have grown all through the winter, and are at this time producing good sized flowers.

Peas and *Beans* planted earlier than we have recommended, will no doubt be found much too forward to withstand the weather which we may naturally expect within the next ten or twelve weeks; and as the object of a little seed is not much, it is advisable to sow again wherever the Peas and Beans do appear too forward to withstand cold cutting winds, severe night frosts, and glaring sunny mornings. A drill can be drawn within a few inches of each row, and more sown at once. Those sown late in December, and through the last month, will do well, and may easily be protected by sticking early, and dredging with dry dust about their shanks of an evening when there is any appearance of frost. The present is a good time for sowing a full crop of the *second early* and *Marrow peas*.

Parsnips, if not already trenched out, should at once be attended to; for if not trenched previous to their growth commencing, they will not be wholesome to eat.

Plant also, for seed, *Carrots* and *Beet*, *Turnips* and *Swedes*, if not already done. A few of the truest and best in quality of *Savoys*, *Borecole*, or any other favourite variety of *Kale*, should be set apart for seed; and if not convenient for them to stand for seed in the quarter where they are growing, they may be carefully removed to any obscure corner for that purpose. *Onions* may also be planted for seed, and the autumn sown be transplanted. Small bulbs also of the two-bladed and silver-skinned Onions should be planted thickly in drills for early spring bulbing. Spanish and Tripoli varieties may be sown on a little heat to forward for transplanting; the two-bladed may be sown on a warm border, and protected with straw, fern, boughs, or furze, for early spring drawing.

The strongest plants of the early *Lettuce* should now be planted on warm borders, sloping banks, &c.; and if a little dry dust can be afforded about their stems, it is a good preventive against canker,—a destructive disease which frequently occurs in wet seasons.

Parsley may now be sown; and the most curled and perfect plants in the rows now in use should be marked for seed. Sow also a row or two of round or Flanders *Spinach*.

FRAMING.—*Asparagus* may now be placed on slight kindly hot-beds, sheltered by bundles of refuse prunings or other materials, and hooped and protected with mats without glass. The linings of *Cucumbers* and *Melons*

should be well topped-up, and protected with mulch of dry hay or other litter, and the sides barricaded with thatched hurdles or protectors made with evergreen prunings, furze, or some kind of easily procurable materials. As the seed sowing season is advancing, it is well to have manure of some kind in store for drilling in with the seed. The beneficial effects of charred materials in forwarding the early germination and healthy rapid growth of every plant are well known; and supposing that all available refuse prunings, old tan, saw or wood dust, ditch scourings, and hedge trimmings, &c., &c., have been carefully put by, a place for the convenience of charring it should be chosen, and the hoard, whatever it may be, should be placed so that it may be charred in readiness for all the crops of the coming season; no matter what crop it may be applied to, it is sure to produce a beneficial effect. As we have had some years experience in charring almost every available article, from a stone to the stem of a large tree, and in turning it all to account in the cultivation of the soil, and plants of all kinds, both in doors and out, and having been possibly one of the first in the present generation to point out its beneficial effects, it may not be amiss, for the amusement and, we trust, also for the benefit of some of our cottage readers, to point out the method we have long practised, in turning to account much that we have seen others reject as useless rubbish; and we will commence with a few practical remarks on *charring*, for pointing out, in the first place, in what way the cottager may easily turn to useful account all his garden refuse, and every thing that is supposed to be by some people nothing but rubbish. Gooseberry prunings, rose prunings, hedge prunings, old hard stalks of cabbage, brocoli, borecole, sweepings, rakings, &c., for all these, rather than dig a pit, we like the charring spot a little elevated, for more than one reason, for supposing the foundation of the kiln or char platform to be damp, the material damp, and the weather also damp, the charring will be a slow and rather an uncertain process, particularly to those unaccustomed to the operation, to get readily rid of the superfluity of moisture in a pit; but if a little elevation is given to the platform, which should on all occasions be made firm and level, the excessive moisture, caused solely by evaporation, may be condensed and made to ooze out from the base; if the materials are to be placed circular and conically-shaped, place three rough stakes or pieces of wood in the centre, by driving them into the ground at a little distance from each other, in order to leave a cavity inside of them of 4 or 5 inches in diameter, into which a straight stake or piece of wood should be placed about the same diameter, if allowed to run to the surface of the platform all the better, it will prevent any of the materials to be charred from running in and choking what is ultimately to be the centre chimney or draught flue; a withy, hay, or straw band, or piece of rope-yarn or string, should be then placed round the whole to prevent collapsing. The stakes to form the chimney may be 4, 5, or more feet high, which must be regulated by the quantity of materials to be charred; if they are placed a little too high for the quantity of materials, no matter, they may readily be sawn off. At the base of this commence by placing some of the dryest and easiest ignitible materials, packing as close as possible together in courses whatever refuse materials there may be to char, taking care if any portion be earthy, close, or damp, to intermix with it, in forming, some of the ignitible materials, so that the process may proceed uniformly; the outside should be cased with the finest part of the materials, and when the whole is packed the centre piece of wood or stake should be withdrawn, and a few burning embers or fire of some kind dropped down to the base of the chimney to ignite it; three or four draught holes should then be opened through the casing at the base, and as soon as properly ignited a turf or sod should be placed over the summit of the chimney, and with a stick about the size of a broom-stick, a row of holes should be pierced through the casing within a foot or fifteen inches, *at first*, of the summit, in order to let out the smoke. As soon as red fire appears, stop those holes, and make another row lower down; and thus continue till finished properly at the base, when all may be securely blocked, and a hole pierced through on the summit, and a little water poured down; the hole should be immediately stopped, the sudden vapour blocked in will readily smother out the fire, and after remaining 10 or 12 hours closely blocked in will be found in readiness to take away, sift, sort, and store for use.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

THE SWEDISH TURNIP.

By the Authoress of "My Flowers," &c.

IN these days of difficulty, when the cheapness of provisions is counterbalanced by the want of money to procure them, and when the failure of the invaluable potato, has deprived us of one of the most useful articles of consumption, I would particularly draw the attention of my *really* economical readers to a vegetable which I daresay they have never thought of as food, I mean the swede. What has been so long and so exclusively regarded as provender for our domestic animals, may be imagined unfit for the use of human beings, or at least quite improper for the table of any but the very poorest classes. But this is quite a mistake: we have never indeed, until of very late years, required a substitute for the delicious potato,—a root for which, perhaps, nothing will ever make up; and possessing that favourite vegetable, we needed few others, except the delicate products of the summer; but now we look round anxiously to see what we can employ in its stead; and the swede appears more nearly to approach the potato than any other root. In fact it is a more *nourishing* article of food; for the potato, with all its good qualities, was said to possess less actual nourishment than some other of our garden productions; whereas the swede fattens not only cattle, but ourselves, and that in its natural state too. I remember hearing an observation made to a medical man, that the children of some poor person could get nothing better than a raw swede for food, and how sad it was to think that they should be in such a state of destitution. To my surprise the reply was, that they could not eat a more nourishing thing: and though it seemed to us a great hardship, it would feed and strengthen them much better than many other things would do, which were more esteemed among us.

Since this observation was made, my sister was speaking to a poor woman who had a large family to support, and very little to give them; and was observing to her how good the swede was in place of the potato, the failure of which is so heavily felt by the poor. The woman replied that she had never known that the swede was so wholesome as my sister described it, but that she had no doubt it was so; for one of her little boys who worked for a farmer was so fond of raw swedes, that he used to pick up and eat the pieces cut for the cattle, and that she had scolded him, because she feared they would make him ill. "But," she added, "that boy is the stoutest and healthiest of all my children, and he eats more swedes than he does bread."

These are facts; and another fact is, that we ourselves find the swede to be a most excellent vegetable for the table. My own fondness for potatoes has always been such, that if I could dine upon them, I cared little for anything else; but since they have been so scarce and dear I have become entirely weaned from them, and have fixed my affections *almost* as fully upon the parsnip and the swede. The parsnip is so much dearer to buy, that in times like the present, when it is the bounden duty of all who suffer under their pressure to choose the least expensive diet possible, it is not to be indulged in so freely; but the swede is to be bought now for fourpence and fivepence a bushel, and is so sweet, so firm, so turnip-like in flavour, and so satisfying, that it forms a most excellent and cheap accompaniment to the frugal fare of the economical family. Plain boiled and cut into pieces as an apple is divided, or mashed like turnips, it is delicate and agreeable; and to those who have to purchase garden produce, or make the most of their own little plot of ground, the swede will be found next in convenience to the potato.

Swede tops are very excellent when boiled and served up like greens. The cottage gardeners have of late grown them very much in place of potatoes, and have found them more profitable than almost any other crop. They keep very well in pits, and when relished and made use of will be found extremely advantageous as a winter vegetable.

It may require some little effort to take to that which has never been eaten before, and seen only in farm-yards as food for cattle; but prejudice will vanish by degrees, and we shall be thankful for anything that is wholesome, and cheap, and nourishing, when we are striving to maintain ourselves or our families upon a trifling pittance.

I do not know whether I ever mentioned the leaves of the dandelion as a vegetable; but at the risk of troubling my readers with a repetition I will observe, that when boiled and served up like spinach the *young* leaves of that plant, particularly in spring, can scarcely be distinguished from the delicate vegetable of our garden. There is sometimes a slightly bitter taste when the leaves are not quite young, but it is by no means disagreeable; and when we do not possess a garden, or one only large enough to contain the useful roots and herbs, it is pleasant to be able to obtain a delicacy without expense. When children are taking their daily walk, it would be sometimes an amusement to them to gather a basket of dandelion leaves for the next day's dinner; and a few eggs poached, or fried, and laid upon them, when cheap and plentiful, make a nice and nourishing meal.

To those who have a garden the vegetable marrow is a very useful and wholesome plant. If a hedge or paling commands a good aspect, the plants may be trained against either; and six or eight plants will give very nearly two hundred weight of solid food, which is a material addition to the "ways and means" of a little household. Plain boiled, and served up alone, or upon toast, this is a most excellent vegetable; and it may also be stewed with meat, or by itself in gravy.

Another most nutritious vegetable, very little regarded in England, but deserving of general esteem, is the Harricot bean. It is a small, delicately white bean, possessing highly nutritious properties; and when stewed or *thoroughly well* boiled, and eaten with pepper and salt, it is a dinner in itself. A gentleman who was anxious to ascertain its real character as food, tried the experiment of feeding a man, who willingly undertook the service, for a certain number of days upon the Harricot bean, and an equal number upon the potato; and the result was greatly in favour of the former. The man stated that the support derived from the beans was superior to that afforded by potatoes, and that he could work much better on the one than the other.

I have never observed any remarks upon this vegetable in the pages of THE COTTAGE GARDENER; but so useful and strengthening as it is, it might with much benefit to the poor be brought into notice, and its cultivation encouraged; because the loss of the potato makes it necessary to use every substitute possible for that once invaluable root; and the Harricot bean is so easily kept during the winter, without trouble of storing and preserving from frost, that it is certainly worth the attention of the gardener and the labourer, and of all who are anxious to obtain cheap and nutritious food for their families in these days of pressure. A sack or two of these beans would be a comfortable store for the wintar, and may be kept any where in a dry place, as they neither emit any unpleasant smell or cause dirt and litter. I shall be glad to know that the cottage gardener has turned his attention to them.

TO CORRESPONDENTS.

SWEET WINDOW FLOWERS (*A. N.*).—You wish these for a box to be gay outside a south window until June. We do not think we can add much to the lists lately given for balconies, &c. For the present, you must only have such hardy things as are there mentioned: *Polyanthuses, Violets, Wall-flowers,* &c.; and early bulbs—as *Snowdrops, Crocuses,* and *Hepaticas*. When gentle April comes in, if you do not mind a little protecting care at times, you may have *Hyacinths* for beauty and fragrance, and *Tulips* for show, and early autumn-sown *Stocks*; and towards May, plenty of *Mignonette, saved over the winter*. It would be of little use putting out anything very tender until at least the middle of May.

AZALEA SINENSIS (*T. W. T.*).—It is difficult to get this to grow in a round specimen-like form; and we do not think its beauty would be increased if it was. If, however, you are very anxious, you may pick out the centre of your tallest shoots, when growth has commenced, and leave the dwarf ones alone. You must not re-stop in summer or you will have wood imperfectly ripened, and therefore unsupplied with flower buds. If the plant is at all healthy and vigorous, it will want a shift from a five to a seven or eight-inch pot, and that after growth has fairly commenced; taking care that by shading and a close atmosphere the plant is not checked. If, on examination, you find the pot is not well supplied with roots, remove a portion of the old soil, and transfer to a similar sized pot. It will not bear pruning so freely, nor break so freely, as the other Indian sub-evergreen azaleas.

MANDEVILLA SUAVEOLENS CUTTINGS (*Ibid*).—Ripe cuttings of this inserted in sand, over sandy loam, and plunged in a moderate hotbed, will succeed; but we prefer small young side shoots three inches in length, taken off in the beginning of summer, and treated in a similar manner, with the addition of a bell-glass over them.

BULBS NOW FLOWERING: HOW TO RIPEN (*H. G. B.*).—You must preserve the leaves of your Crocuses, Tulips, and Hyacinths healthy as long as possible, by keeping them growing, preserving them from frost, and ensuring the roots plenty of moisture until the foliage naturally decays. We presume your bulbs are in pots.

THE WATER VIOLET (*Ibid*).—This is the *Hottonia palustris*—a primrose-looking aquatic, growing in England in ponds and ditches, and producing flesh-coloured flowers, which are very interesting.

DAHLIAS AND HARDY AQUATICS (*Ibid*).—The latter you may plant out at any time; if, however, you have got them under shelter, you might defer planting until the end of March. The dahlias are not safe, if growing, until the end of May. If you mean large roots, little, or not at all vegetating, you may plant in the beginning or middle of May.

ANEMONES, &c. (*Samoyed Laplander*).—Your proposal for rearing these and ranunculuses in pots, for transplanting in succession, will not answer; but you could plant them in a bed this month, and again in March for a succession in the open beds. Verbenas, Geraniums, Heliotropes, and Fuchsias cannot be so managed from seeds as to blossom fit for a flower bed the same season: annuals are almost your only resource. It would be more cruel in us to recommend one nurseryman over another than to advise you to go back to Lapland again.

FLOWER-GARDEN (*S. H. W.*).—We have said, last week, your plan was original, and quite new to us; and we may add, it is the only one in the series sent to us adapted for the different heights as well as the colours—indeed, the only one we have seen on paper out of our own hands in which this idea is at all recognised; and your first question comprehends all that need be asked on flower gardening,—thus: "The plants are required to be gay for as many months as possible, to present a good arrangement of colour; and it is desirable that they should diminish in height from 6 to 11, and from 6 to 1, as the beds diminish in size." You are perfectly right, and your colours were not badly disposed last year; but your heights were out of joint. Your first start was an error at 6, and you could not possibly have carried out the idea after 6 was planted. We would plant a much stronger geranium in 6, but the same colour; remove 1 to 3; do away with the plant in 3—a mere weed (Double dwarf Feverfew), and put *Nierembergia gracilis* in 1; the rest as before.

LAW OF RENTS (*J. S. L.*).—We cannot advise upon a legal point so difficult. If you cannot get in your rent, why not submit your case to the *Guarantee Rent Society*. They guarantee the rent, or merely collect it: you will avoid much anxiety, trouble, and risk by employing them. To those persons whose income is limited, and who know from experience that uncertainty is the mother of confusion and misery, it surely must be worth while to pay a small per centage in exchange for regular guaranteed payments at stated intervals.

VINERY (*Amateur, Wallingford*).—By all means ventilate by sliding shutters in the front and back wall; but pray make those in the back roomy. Your twenty feet house will be about five lights in length, and we would place three large "shutters" equidistant at the highest level you can attain. They ought to be at least two feet long each, by about a foot in width. The front ones need not be quite so large, and both, to be complete, capable of graduation. Your angle is too sharp for our taste: a flatter roof, say 60°, will give less anxiety. If, however, you adopt "rough plate," which excites much less jealousy than it did, per-

haps a sharper angle would be well. Place your flue about a foot from the front wall, have a good cavity all around it, and take care that the surface of the flue is, at least, a yard distant from the vine stems. Make your front wall on arches. Plant the vines inside in materials described in early numbers of THE COTTAGE GARDENER, but take care that they be allowed to ramble freely through the front arches. Remember that *thorough drainage* and a free and open soil is essential; stagnation of any kind is sure to prove fatal to your plan. You want to embrace other objects in your vinery, and so should we. Write again, and give us a definite idea as to what period of the year, and for how long, you require grapes. We will then undertake to settle the rest. Say also if you have other glass, and what your general aims may be.

NEGLECTED PEAR-TREE (*Philocarpus*).—If your tree is gross, prune away all wild-looking foreright shoots, but tie or nail down a great many of the more moderate and shorter-jointed ones. Unless you are determined on symmetry, let your large branch ramble away, although poaching on his neighbour's manor; that is, as long as he is able to "pay his rent." The cutlers will give you the best information about rusty knives, albeit we do know that if seldom used a slight dressing of sweet oil now and then is a good preservative. The age of cherry stocks is not alone the criterion as to grafting. Graft them as soon as they are as thick as a strong goose quill. The old May Duke is a capital sort for a half standard. A half standard has about three to four feet of stem. A dwarf standard is, we conceive, a misnomer. Such a term, we conceive, may be applied to fruit-trees grown as bushes; that is to say, without a length of naked stem. Gooseberries do not usually make tap-roots; by all means encourage surface-roots.

TULIPS IN HOLLAND (*Sister Anne*).—You would be sadly disappointed if you went to Holland to see a fine display of the best kinds of tulips, such as are emphatically called florists' flowers. You would see; it is true, immense quantities of such things as double and single Van Thols, Tournesols, Pottebaakers, and such like; but you would look in vain for such flowers as the *Semper Augustus* and *Viceroy*, for which such immense sums were given during the *Tulipomania*. If you desire to see the finest sight in tulip culture, you must visit a place much nearer home, Mr. Groom's establishment, at Clapham Rise. There you may behold a truly magnificent collection of the finest tulips in the world. If, however, you are hard of belief, visit the ancient city of Haerlem about the first week in May, and inquire for the flower-gardens of P. Van Velson and G. Byvoet, two of the greatest growers of tulips in that country.

FORCED BULBS (*G. A. F.*).—Your hyacinths, tulips, and crocuses that have been forced, will be of no use for that purpose next year. The *hyacinths* are fit for nothing but to plant in the borders next year. Place such as have been forced in pots, in a cold frame, and give plenty of water, till the leaves begin to turn yellow; then place the pots on one side out of doors in a shady place. As soon as the leaves are all dead, turn them out of the pots, dry the bulbs, remove the dead roots and leaves, and in autumn plant them out in the borders to flower there. Hyacinths that have bloomed in glasses are still more injured, as the water does not add any fresh coats to the bulbs. As soon as they have done flowering, take them out of the water, and lay them in a shady border, covering the bulbs and roots with soil and protecting them from frost. When the leaves are all yellow and dead, take the bulbs up, and treat like the others mentioned above. *Tulips* and *crocuses* must be treated in a similar manner the first year after forcing, and the year after should be planted out in a bed of rich earth rather thinly. Here they will recover the effects of forcing, and two years afterwards may be forced again. But these bulbs are so cheap now, that it is scarcely worth while to be at all this trouble to bring them round again. They serve well to ornament the flower border, but we recommend fresh roots from Holland for forcing every year.

FORCED ROSES (*Ibid*).—Your perpetual roses in pots will answer well for forcing again next year, if you take off all the flower-buds as they appear in the summer. Indeed they, like all other shrubs, whether flowering or otherwise, will acquire a habit of flowering early. Nip off all flower-buds that may appear during the summer and autumn, and place the plants in a cool, but not tree-shaded, place, so that no trees should drip upon them. Behind a north wall, or the north of a low hedge, is a good place for them. Repot in autumn in rich soil, and prune early.

ZEPHYRANTHES GRANDIFLORA (*F. H.*).—This is a bulbous plant of considerable beauty. It may be potted now in sandy peat and leaf mould, two parts of the former to one of the latter; put three bulbs in a 5½-inch pot, and place them on a shelf in the greenhouse, watering moderately at first, but as the leaves advance give more abundantly. When the leaves begin to turn yellow put the pots in a cool place where no frost can reach them, and in the spring repot again, when it is probable your plant will flower.

HOTBED FOR CUTTINGS (*Ibid*),—Procure a quantity of fresh stable litter, throw it on a heap and dash some water amongst it; turn it over frequently, and when it is uniformly moistened and in good heat make it into a bed the size of the frame; beat it well with the fork as it is made layer upon layer: 2½ to 3 feet high will make a good bed. Set the frame upon it, and tilt the lights behind, to let off the rank steam. In a fortnight the heat will be moderated, then cover the surface with some coal-ashes, or sawdust, or sand, and it is then ready for the cuttings.

GOLDFUSSIA ANISOPHYLLA NOT FLOWERING (*E. A. P.*).—Your plant is of a straggling habit and does not flower. You do not state how you have grown it, nor the condition its roots are in. It is probably pot-bound, and will never flower so long as it is so. Cut it down and give no water for a week, then turn it out of the pot, reduce the ball, trim off part of the roots, and repot in the same sized pot in a compost of loam, peat, leaf-mould, and sand; keep it in the stove all the summer, pinching off the ends of the shoots two or three times to make it bushy. Keep it rather cool during autumn and the early part of winter, and there is no doubt it will flower freely next spring. Put in a few cuttings to raise a new plant or two to succeed the old one when it becomes weak and straggling again. It is worth all the trouble.

COTTAGE GARDENERS' DICTIONARY (*G. Haygood*).—The December, January, and February parts have all appeared regularly. Your bookseller is in fault.

SUGAR BEER (*S. J. Y.*).—The hops should be put in when the water is boiling, and be boiled only five minutes. A temperate place—46° or 50°—is that in which the fermentation should proceed.

STORING POTATOES (*J. B. C.*).—We are glad you find our plan of storing in alternate layers with dry earth so effectual. Hay does not answer—it does not exclude the air, and is apt to become damp and ferment. Keep the mulch over the roots of your *newly-planted fruit-trees*; it will exclude the drying winds of spring and the drought of summer.

HEATING GREENHOUSE BY GAS (*W. B.*).—We have a small gas stove, merely to exclude frost from a greenhouse, and it answers very well. It is a small circular stove, with one Argand burner, and an iron tube instead of glass round the burner. A tin chimney carries off all the noxious gases, and the air to support the flame is supplied from without-side by a pipe passing into the bottom of the stove.

NAME OF PLANT (*A Florist*).—Your plant is *Pelargonium echinatum*, from the Cape of Good Hope, and requires the same treatment as the Ixias, and as you have given to it in part. Under the best treatment it is a shy bloomer; it will grow in any kind of light porous compost, and your own seems as good as any. We find plants from three to five years old the easiest to bloom, and we think a dry shelf, or under the stage in a greenhouse, is rather against it. About the end of May we turn the pot on one side under a south wall, to take its chance till the end of September, then keep it in a cool part of the greenhouse all the winter, with very little water till the end of January, and only once in ten days through the spring. It flowers in April, and a very pretty whitish flower it is, on long footstalks. It will also force to flower in February, but the plant is not willing to flower for three or four seasons afterwards.

FLOWER-BEDS (*C. T. J.*).—For standard Fuchsias, take *Corallina* as the best, then *Epsii*, *Ricartonii*, and *Exoniensis*—all red ones; and if you want white ones, *Sir Henry Pottinger* and *Cassandra* are as good as any of the newer ones for standards; all the plants you name, and nine-tenths of the present race, will do very well in your border 18 inches wide and 2 feet deep of good soil. *Ranunculuses* and *Anemones* are not improved by "good stable manure," and may be spoiled by too much of it. Keep the manure for the summer crop, and what remains of it will be just the thing for the "florists' roots."

FLOWER-GARDEN (*Naval Officer*).—Mr. Beaton commenced his flower-garden lists from October 1849, and through the following winter and spring he described all the best in our gardens. Read his remarks on these before we trouble him any farther on the subject.

BEES (*Rev. T. H. Roper*).—We are glad that you are about to demonstrate to your parishioners the vast superiority of the depriving system. You must begin by buying swarms in May or June. Use Payne's hives. Mr. Payne will have you supplied if you write to him. Do not have a shed, but shelter your bees with a milk-pan. It may be placed upon the uppermost hive with safety, though there be three or four hives one above the other. If you have an early swarm, and the season be good, you will require both the large and small hive of Mr. Payne. Guide comb *is* necessary. See THE COTTAGE GARDENER, page 281 of present volume.

EVERLASTING SWEET PEAS (*Hudibras*).—Sow them an inch deep in the open border at the commencement of April. They require no particular culture. Weeding and supporting includes the whole.

EARTHING-UP POTATOES (*H. W. S.*).—We shall be much obliged by your notes on this subject. Thanks for the offer of seed, but no more required.

MILDEW ON VINES (*A Subscriber, Lewis N. B.*).—Dust the affected parts unremittingly with flowers of sulphur as soon as the mildew is detected, and dress the stems and branches of the vines with a paint of clay and sulphur.

GERANIUM LEAVES (*G. F.*).—Remedy for your diseased geranium leaves! Why, keep out the frost from your greenhouse; they have been destroyed by it.

PASSION-FLOWERS (*Philocarpus*).—You may cut off large branches of these if absolutely necessary; but it is much better to unnail them, and retrain those crossing each other. The eggs you enclosed are those of the Lackey Moth.

FERNS FOR GLASS-CASE (*Y. Z.*).—You will find a list at page 306 of vol. 4. We cannot recommend tradesmen. Write to any florist who advertises with us.

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WEEKLY CALENDAR.

	FEBRUARY 20—26, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
u	Field Crickets open their holes.	30.143—29.999	51—30	S.W.	0.20	7 a. 7	21 a. 5	11 18	19	14 2	51
	Sun's declinat., 10° 40′ s.	30.165—30.138	50—44	S.W.	—	5	23	morn.	20	13 56	52
	Viper seen.	30.316—30.254	51—28	N.W.	—	3	25	0 32	☾	13 48	53
UN	Sexagesima Sunday.	30.305—30.236	56—32	W.	—	1	26	1 42	22	13 40	54
	St. Matthew. Dr. Camb. b., 1774.	30.289—30.275	42—33	S.W.	—	VI	28	2a.46	23	13 31	55
U	Frogs croak.	30.366—30.349	48—36	E.	—	57	30	3 46	24	13 22	56
/	Violet flowers.	30.374—30.328	50—30	S.W.	—	55	32	4 38	25	13 12	57

the 27th of February, 1737, was preached one of the most able as ever delivered from an English pulpit; and we gladly avail ves of the date as a timely introduction to our readers of the author reacher of that sermon—the Reverend Walter Harte. That n has for its text, *Ye believe in God, believe also in me* (John xiv. 1), s theme is imparted by its title: "The Union and Harmony of n, Morality, and Revealed Religion." It was a most seasonable ng of the spiritual sword at a time when Deism was uprearing a ront; and its efficiency is acknowledged by the fact, that it passed h five editions in twelve months. It was preached before the rsity of Oxford, by Mr. Harte, who was then vice-principal of St. s Hall. Meritorious as is that admirable sermon, it would not him to a notice here, if he had not done good service to the cul- of the soil; but, as he possesses that merit also, we may sketch canty particulars as we have been able to gather together con- g him.

appears to have been born somewhere between Hungerford and ary, in Berkshire, and, perhaps, in the village of Kintbury, about ar 1707. Our reason for this conclusion is founded on this passage *History of Gustavus Adolphus*. Speaking of the mansion built by Craven at Hamsted-Marshall, in that vicinity, he says—"It was a of architecture in the true taste of the reign of Charles I., and cost Craven (though he never lived to finish the design) about £60,000. uthor (Mr. Harte), *when a child*, was a spectator of its destruction , in the year 1718, or thereabouts. It was not built by Inigo but by Gerbier, a German architect then in vogue."

Harte's father was a clergyman of the Church of England, but ed of his preferments in 1691, for conscientiously opposing the es then prevailing. Among those preferments was a prebendary lls; and it redounds to his honour, as well as to that of three ive Bishops of the see (Drs. Kidder, Hooper, and Wynne), that ontrived to let him have the emoluments of the prebendary down time of his death, in 1735. That he deserved such favour we are ready to believe, since we know that he was one of the few who ly did their duty in endeavouring to mitigate the fury of that butcher, Judge Jefferies. When this barbarian came to Taunton in 1685, to wreak vengeance on the supporters of Monmouth's on, Mr. Harte was rector of St. Mary Magdalene in that town, and ted privately upon Jefferies, to remonstrate against his severities. idge listened to him calmly, and let the white spot be blazoned black life, that, though he had never seen Mr. Harte previously, him advanced, in a short time, to a prebendal stall of Bristol.

son, who is our theme, was educated at Marlborough School, and ry Hall, Oxford, where he took his degree of Master of Arts, in uary of 1730. Very early in life he fortunately became acquainted Pope, who aided him by correcting his poems, and Harte duly the obligation. Thus he acknowleged, that these two first lines *Essay on Reason* are altogether from the pen of Pope:—

> "From Time's vast length, eternal and unknown,
> Essence of God, co-eval Reason shone."

ough the same great poet he was introduced to others still more ful in patronage; and he thus warmly versified the utterance of titude:—

> "My first, my latest, bread I owe to thee:
> Thou and thy friends preserv'd thy Muse and me:
> By proxy, from a gen'rous kindred spread,
> Thy Cragg's bounty fell upon my head:
> Thy Mordaunt's kindness did my youth engage,
> And thy own Chesterfield protects my age."

ro last acknowledgments refer to his having obtained a tutorship, young, in the family of Mordaunt, Earl of Peterborough; and to e in life, 1751, being promoted to a canonry of Windsor, through terest of the Earl of Chesterfield, of whose son, also, he was for years the tutor. He was, likewise, vicar of St. Austle and St. in Cornwall. Dr. Johnson related of him, that when his *History stavus Adolphus* was on the eve of publication, he left London to he showers of praise with which he expected to be visited. It is, l doubt, a very able book, but it met with little kindness; and he hamed to return, when he found how ill it was received. It was y, said Dr. Johnson, in coming out on the same day with Robert- History of Scotland. Lord Chesterfield justly characterized its by observing, that it is full of "Latinisms, Gallicisms, Germanisms, *isms* except Anglicisms." His publisher, Hawkins, had objected uncouth phraseology; but Harte refused to alter them, replying, ge, that's what we call writing." However, the public called it ther name; and in the second edition he corrected and softened ressions. He died at Bath in the June of 1774. A contemporary nished concerning him these anecdotes:—

rte and Hawkins passed a week with me in the country; and, of moduses, Harte related, that a miller applied to him for an ient. He replied, 'With all my heart;' but added, 'take notice, lteration will break the modus, and I shall then have a right to full

Many clergymen would not act with such generous disinterested- He was a man of very liberal principles. I have many letters im (one I regret having lost), in which he communicates, in pa- terms, that he and his pupil Stanhope were detained by illness at a town in Carniola till their money was spent, when Mendez, a Jew merchant of London, who was travelling in that country, hearing that two gentlemen from England were in distress, he went many miles out of his way to visit them, and supply their wants. I remember W. H. extols his humane kindness, and says he was preferable to many *soi-disant Chretiens*. At Rome, his landlord offered to introduce him to a lady of pleasure. On his replying, that the English clergy held inter- course with such females unbecoming, the landlord told him, in Italy such practices were so common, that *cardinals* were not ashamed to look out of the window to see a procession, with their arms round their mistress's neck. W. Harte was one of Dr. Samuel Johnson's earliest admirers. His life of Richard Savage was published in 1744; soon after which, Harte, dining with Cave at John's Gate, took occasion to speak very handsomely of the work, which was anonymous. Cave told Harte, when they next met, that he had made a man very happy the other day at his house, by the enconiums he bestowed on the author of Savage's Life. 'How could that be,' says Harte; 'none were present but you and I.' Cave replied, 'You might observe I sent a plate of victuals behind the screen. There skulked the biographer, one Johnson, whose dress was so shabby that he durst not make his appearance. He overheard our con- versation; and your applauding his performance delighted him exceed- ingly.'"

We have left, for a concluding notice, the work which claims for him our notice. It was published in 1764, and a second edition in 1770, entitled, *Essays on Husbandry*; and, without any reservation, we can assure our readers that it is one of the most able and most amusing works that issued from the press during the last century. A former possessor of the copy in our library has written, with per- fect truth, on one of its blank leaves—"These essays are not so well known as they deserve. The title implies a book upon a very confined subject; but Mr. Harte has very skilfully interwoven a numerous stock of general politics and national economy, with well-written anecdotes of the authors who have written on husbandry." Mr. Harte's objects in writing those essays are thus told, in his own words—words steeped in truth, and the first sentence of which should be written on the door-posts of every farm-house in the British Isles:—"It is my opinion, that agriculture is, and ever will be, in an improvable state; and I had two principal intentions in writing these essays.—*First*, to exhort the inhabitants of my native country to carry on and maintain that superiority in husbandry which they have hitherto possessed without a rival; and, *secondly*, to try if it were possible to enrich the poor, honest, industrious husbandman." No writer has ever discussed his subject more successfully. He shows, "that a single uncultivated acre is a real physical evil in any state;" he argues, "that a nation diligently employed may be compared to a piece of tapestry work, where a certain texture of threads and union of colours, imperceptibly interwoven and blended together, represent agriculture, trade, commerce, and the me- chanic arts. In mixing and harmonising these consists the great skill of the workman. Though trade, commercial arts, and husbandry should be all encouraged and supported by wise governments with scrupulous attention, yet the scale may be allowed to preponderate in favour of agriculture, but in so slight a degree, as only to be perceived by a few persons of most discerning judgment; for the people employed in manu- factures, artizanship, &c., are starved in times unprosperous to their business, if they are not supplied with the common necessaries of life by the generous industry of the cultivator; nay, even in more prosperous times, care must be taken to supply our fellow citizens with food con- venient, and that food at a moderate price, for fear of being under-sold in the works of our labour by other nations." After this sound dictate of reason, which epitomizes all the arguments of modern political econo- mists, Mr. Harte proceeds to point out the progress of the cultivation of the soil, and its encouragement by the wise of all nations, from the time of King Uzziah, "who built towers in the desert, and digged many wells; for he had much cattle, both in the low country and in the plains; husbandmen, also, and vine dressers in the mountains, and in Carmel, for he loved husbandry" (2 *Chron.* xxvi. 10). He points out, that the labourer must not be oppressed, nor neglected; for "the great and good cannot help recollecting, that to them they owe not only their bread, but the delicacies of their table, their wines, fruit, and vegetables, their raiment, the fire that warms them, the tapers which yield them light, the softness on which they sleep, the magnificence of the equipage which draws them, and a part of the medicine which gives them ease." Mr. Harte then proceeds to suggest the means whereby the cultivation of the soil may be improved,—by judicious experiments, by improving the fodder of cattle, by the increase of manures, by more frequent hoeing, by drilling, by draining, by spade husbandry, by imitating the Flemish husbandry, by introducing sheep from Spain, to improve our wool; by inclosing waste lands, because "the poor man, who is monarch of but one inclosed acre, will receive from it more profit than from his share of many acres in common with others;" and the culture of hemp and flax in Ireland. Finally, he warns landlords from the injustice of raising their rents in proportion to the improvements effected by the tenants. Such treatment, says Mr. Harte, gave birth to this old proverb:—

> "He that havocks may sit;
> He that improves must flit."

Or, in other words, the tenant that racks the land may continue; but he that improves the estate must pay an advanced rent, or be obliged to quit.

The second essay, and there are but two, is *An account of some experiments tending to improve the culture of Lucerne*, and, like the other essay, is as distinguished for its sound practical information, as for its fund of good reasoning, and of anecdote. No one can read it without interest, and no one desiring to cultivate Lucerne, can read it without profit. It is true, that he may be in error when recommending it to be raised in a nursery-bed, and the seedlings to be then transplanted in rows, but there is abundance of good information applicable to all modes of cultivating it, and we are not sure that he is wrong in the mode he advocates. But we must conclude, and it shall be with an extract of Mr. Harte's poetical description of the Lucerne, or Alfalsa, hay harvest in Spain.

"Th' impatient mower, with an aspect blythe,
Surveys the sainfoin-fields, and whets his scythe.
Ynoisa, Agnes, Beatrix prepare
To turn th' alfalsa swarths with anxious care:
(No more for Moorish sarabands they call,
Their castanets hang idle on the wall):
Alfalsa, whose luxuriant herbage feeds
The lab'ring ox, mild sheep, and fiery steeds;
Which ev'ry summer—ev'ry thirtieth morn—
Is six times reproduc'd, and six times shorn."

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of the above days are 47° and 34°, respectively. The greatest heat, 61°, was on the 25th in 1816; and lowest cold, 21°, was on the same day in 1847. Rain fell during 88 days of the period, and 80 days were fine.

ESCHEWING, as we do, an interference, even the most distant, with political topics, yet we shall venture to add our voice in favour of a repeal of the duty on paper; and we are the more hopeful that this repeal will be accomplished, because it is a glaring anomaly, that whilst the government have facilitated the diffusion of literature, by the postage reductions, and by permitting books to be sent in the mail bags for sixpence from the Land's End to the Orkneys, yet, by retaining the duty upon paper, they check the production of that literature, which they have thus given the means of diffusing. No work can be diffused among the mass of our population unless it is very cheap; and no work is sufficiently cheap for circulation among that mass, if its price exceeds twopence; and it is upon this class of publications that the duty on paper presses most injuriously. In our own case, the money received for the sale of 32,000 copies is annually taken by government for the paper duty. Now we do not complain of this, because we took it into our calculation of outlay when establishing THE COTTAGE GARDENER. We knew that we should have to pay that paper duty, and this being so, we knew we could only afford to pay so much for literary assistance, and we could only afford to give so many pages. The reading public, therefore, are the sufferers; for they would have a larger number of pages for their money, and a greater number of minds engaged in their service, if the duty on paper was removed.

The mischief, however, does not stop here; for Messrs. Knight, Chambers, and others, will coincide with us in stating, that the sale of a cheap periodical increases in proportion to the number of its pages and the excellence of their contents. The duty on paper, we have shown, reduces both these, and consequently lessens the sale. The results from this are, that thousands of workpeople—paper-makers, printers, folders, stitchers, and others, are kept out of employ. That this is no imaginary picture, but the actual results produced by the paper duty, we have this unimpeachable testimony from Mr. Knight and Mr. Chambers:—

Mr. Knight says:—"I have announced a 'Supplement' or 'Companion' to 'The National Cyclopædia,' which will consist of a Series of Treatises on Scientific, Industrial, and Social Progress. To produce this work as it ought to be produced, I must endeavour to procure the assistance of the best minds in the country—of the most eminent professors in every department of knowledge. Assume that this work will in quantity be equal to a third of 'The National Cyclopædia,' or four volumes,—I cannot secure such assistance under an expenditure of 2,000*l.* In that case I must sell at least 25,000 copies to cover my outlay. Such a risk 'must give us pause.' I have deferred the commencement of this important book until I see if the Government contemplate a repeal of the Paper Duty in the next session of Parliament; for if I print 25,000 copies of this book, I shall use 6,400 reams of paper, weighing 20 lb. and paying a duty of 2*s.* 7½*d.* per ream, increased by the duty upon the covers, whether paper or milled board, to 2*s.* 9*d.* a ream. Here then is a burden of 880*l.* imposed upon this undertaking. Remove the burden of the 880*l.*, and I should have little hesitation in carrying out my idea. My risk in the greatest original expenditure, the copyright, would be reduced to 300*l.* per volume, instead of being 500*l.* per volume. But suppose I should hold it my interest to go further,—not to put the saved tax directly into my pocket, but to make my book more valuable, and therefore more extensive in demand, by adding the 880*l.* to my original estimate of the sum to be paid for copyright—by paying 700*l.* per volume instead of 500*l.* The inevitable improvement and consequent popularity of my book might diminish my risk to a greater degree than the saving of the amount of the Tax. If I would have the very highest assistance, I must show my sense of its worth by the most liberal payment. The Paper Duty adds nothing to the value of my book. The readers cannot receive any benefit from this large item of expenditure. But if I am relieved from the Paper Duty, I have a fund in reserve which will enable me to ask the highest in scientific knowledge and in literary accomplishment for their invaluable aid. If Sir John Herschel would receive what Sir Charles Wood might be pleased to remit to me, my project would be comparatively safe. The fund out of which I could produce an unequalled book, by an extraordinary payment to the highest class of authors—the fund by which I could benefit my countrymen as much as by any educational grant—is in the hands of Parliament. Will Parliament let me wisely use it for the public advantage,—or will it continue to demand it as a small item to swell the Excise, in the same return with the impost upon gin?"

"The 'Miscellany of Tracts,'" observed Mr. Chambers, "was closed as non-remunerative with a steady sale of 80,000; while it was calculated that this work, up to the end of last year, had paid 6,220*l.* of duty. Now, had not this money been taken by the Government, we might have been advised to continue the work. There was a business stopped which distributed 18,000*l.* a-year in the employment of labour and the profits of retail trade,—there was an organ of intelligence and morality for the people of this country closed by the Government, as effectually as if they had sent the police to break the presses. To illustrate this matter further, we have since set a-going a similar work, but at three-halfpence a sheet, and on somewhat more ambitious principle as to the grade of subjects and style of treatment. Driven from the penny field by the Paper Duty, we try that of three-halfpence. But of this series of sheets the sale is under one-half of the former. The higher price appears to be the chief cause why the sale is thus restricted. As the profit is but small, this work may have to be given up also."

These are facts admitting of no dispute; and as similar arguments *did prevail* to obtain more light to our plants, by a repeal of the duty on glass, and *are prevailing* to obtain more light to our dwellings, by a repeal of the tax on windows; so do we anticipate that they *will prevail* in obtaining the abolition of that duty which operates equally prejudicially by diminishing the light that is diffused by our cheap literature.

GARDENING GOSSIP.

'HE *Society for the Promotion of Floriculture in Great Britain* have, at their North-eastern Branch, elected Charles Palmer, Esq., of Shacklewell, president; and Mr. Gurney, of Bethnal Green, vice-president, for the rear 1851; and the City Branch have elected — Dendy, Esq., and Mr. Theodore Lockhart, to the same offices. The judges and committee, who gave such satisfaction through 1850, have, for the most part, been re-elected. This society has determined that no competition of old flowers shall be entertained, the sole declared object being to receive from members newly raised subjects, and to report their character.

The meetings got up at *Worton Cottage* having signally failed to do any service to the floral public, have been very properly given up. The public begin to look very jealously at a high priced flower, with even a good character, unless they know whose opinion it is that is recorded of it.

A sort of rivalry has sprung up among the leaders of London shows, and *the Dahlia* will be the subject of several popular metropolitan exhibitions. The South London Florists, who condemned the *Marchioness of Cornwallis* and the *Standard of Perfection*, which now stand their ground among the first class flowers, will endeavour to get up a display. The *Chelsea* growers intend to keep up their annual meeting. The *Shacklewell* gentlemen, who have this year obtained the patronage of the leading cultivators for sale, are making great preparations. The *Stoke Newington Society* goes on as usual. The *North London Florists*, notwithstanding the serious *fracas* at the dinner, where a gentleman showed another's flowers, having made some changes of men, and gained in number, much to the society's advantage, will not forget the Dahlia; and one of the large squares at Notting-hill has been applied for, to hold a monster show in that locality. The general opinion is, that Shacklewell will take the lead, and Notting-hill come next; but all beyond one, near London, are too many.

Dahlias grown for sale—make *cuttings* very carefully, and so remove merely two joints with the top, that they may have all the benefit of a break at any joint; but this is not the best plan for those amateurs who want but few. One plan for persons who want but two or three of a sort, is to throw all the dry roots into a hot-bed; or, for want of that, to keep them in a warm place until the eyes show where they will break, and then to separate the tubers into as many pieces as plants required, but to leave only one good eye to each piece; the others are easily scooped out. These pieces of tuber may be cut into a reasonable size for potting, and be kept growing until planting time. If more plants are required, pot all the roots with the crown or collar above the soil, and as each shoot that comes up attains two inches in length, break it off and pot it singly in a thumb pot—not one in fifty will miss striking. The plants thus formed are the best and strongest, and form the best tubers. These hints are worth the attention of any amateur who has not acted upon the principles before.

At Nottingham, the florists, who are enthusiastic in the cause, are getting up a testimonial of respect to *Mr. Wood*, of the Coppice, a steady veteran advocate of the science, and a well known cultivator of the Carnation and Picotee. A great number of men, whose half-crowns are more to them than pounds would be to many, have joined in this testimonial, which, being the work of numbers, will be highly complimentary to the receiver. No florist has earned a reputation by a larger exercise of perseverance in the improvement of florists' flowers.

The *Early Tulip* is one of those welcome visitors that give brilliance to the garden when flowers are scarce. None but those who have seen the scores of varieties now grown in Holland, can form an idea of what may be done with them. We have seen in a garden at Fulham, and a regular florist's garden too, more than fifty varieties, and thousands of each sort, forming a mass of colour that would have a beautiful effect in geometrical gardens—white, rose colour, brilliant scarlet, yellow, and striped of all kinds, are at command; but very few of these early kinds are what the florist would call "clean;" they have all stains in the base, which render them worthless as show flowers. Yet we think they might be subservient to any grand effects to be produced in fancy beds and borders.

The well known, but not very old plant, *Weigela Rosea*, has been shown as ill grown as anything we know. We have seen it this spring in flower, not twelve inches high, quite as much across, or through, and one mass of bloom. It was allowed to grow out of doors in its pot (size 32) all the summer, and before it was put in the greenhouse it was cut down, the wood having well ripened. The result is a very handsome little plant, in profuse flower, much less and much better bloomed than any we have seen at shows.

The only safe season to plant *Ranunculuses* is this: as long as we can remember, Valentine's Day was considered so good a time, that the nearest open weather was taken to plant all the better kind of tubers for the flowers we depended on to exhibit in June. Autumn planting is far better for the increase of the stock; but in some seasons we have known them all cut off. This may be obviated by covering effectually; but spring planting is always safe; and if we do not obtain quite so large an increase, we are much more secure against positive loss.

In *Bethnal Green*, which, before the ground was cropped with bricks and mortar, was a most important land of flowers, there are many *societies* for the promotion of social exhibitions. The members pay one shilling per month, which, with donations from neighbours, and various sources beyond these periodical payments, form a fund for prizes, deducting merely the price of an annual dinner: the prizes are the same in number as the members, all of whom are bound to show the best flowers they can, good or bad, or they cannot take the prize to which they are entitled, only on condition of showing. In the division of this, the members begin with their own subscriptions, say twenty members at eight shillings each, is eight pounds; and say there shall

be a fall of only sixpence from one prize to another, the highest prize would be fourteen shillings, the lowest four shillings. But if there be, from other sources, five pounds more, that would be equally divided among the twenty prizes, making the first nineteen shillings, the last nine shillings—because it is presumed that all the members interest themselves alike in procuring the extra funds. And none but those who have attended these meetings, can form an idea of the enthusiasm that prevails when the cloth is cleared, and the flowers are on the table. It is scarcely credible how these little rivulets help to swell the great river of floriculture. Five hundred such societies would do good; but multiplying public shows in the same localities does mischief; there is not enough patronage to keep all doing well.—E. Y.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

GAUNTLETTED TACSONIA (*Tacsonia manicata*).—*Paxton's Flower Garden*, i. 131.—A splendid half-hardy climber—the finest of this beautiful section of *Passion flowers*—with brilliant crimson scarlet blossoms. A native of the western declivity of the Peruvian Andes, where it was first discovered, in 1842, by Mr. Hartweg, who transmitted seeds of it to the Horticultural Society, in whose garden, at Turnham Green, it was reared in 1843.* The so-called genus *Tacsonia* was founded by the venerable Jussieu, many years back, on the Indian name of some of the species which yield eatable fruit, as, for instance, *Mollissima*, *Speciosa*, *Tripolita*, and probably others not known to us. The second name, *Manicata*, means, literally, a gauntlet, or sleeve, and is applied, in the language of botany, to the surfaces of leaves or other parts of plants covered with entangled hairs, which can be torn off like a skin; and we believe it is applied in the instance before us to the downy hairs on the under surface of the leaves, which may be stripped off in flakes. The large bracts are also furnished with a *Manicate* covering of down. It belongs to the Natural Order *Passion flowers* (Passifloraceæ), and to the third order of the fifth class in the Linnæan system, 5-*Pentandria* 3-*Trigynia*.

The progress of scientific cross-breeding will, in time, we believe, reveal the truth that the Passion flower family has been unnecessarily divided into fictitious genera, of which *Tacsonia* is the most conspicuous, and offers the least of those essential characters on which separations among vegetables are based. In *Paxton's Flower Garden*, in which Tacsonia manicata is figured, Dr. Lindley, the Editor, confesses that "the grounds upon which Tacsonias are separated from the Passion flowers, seem by no means clear. De Candolle relies on the long calyx tubes and scarlet coronet of the former, with which this species does not agree. Meisner's analysis brings out no more; and it is impossible to gather any distinction from Endlicher's descriptions. Nevertheless, there is something very peculiar in the appearance of Tacsonias, and we trust a real distinctive character will, in time, be discovered." Here the "ruling passion" is, at least, "acknowledged." But the truth is, whether the art of cross-breeding can establish the fact or not, nature has not stamped "a distinctive character" on Tacsonias that will maintain their separation from the true Passion flowers. *Manicata*, itself, is a true link between those Passion flowers which have a coronet, or filament-like appendages called rays, and those, the Tacsonias, in which these appendages are not fully, if at all, developed. Among the older Passion flowers, themselves, a far more marked distinction is seen in the terminal spike inflorescence of *Passiflora racemosa*, from the more usual axillary flowers of the genus, than the want of, or partially developed, fringes in the flowers of Tacsonia. And as this distinction has not proved a bar, or forbidden the union of the axillary-flowered *cærulea*, and the terminal raceme-flowered, or *racemosa*, we may entertain the opinion that the want of a developed coronet in Tacsonias, will not hinder their union with the older Passion flowers; and we cannot conceive two parents more likely to pay the labours of the gardeners who would apply the pollen industriously, and at the proper time, under favourable circumstances, than the subject of this biography and *Passiflora racemosa*. Even an entire failure to unite the two sections by the influence of the pollen dust, would not shake our faith in the identity of kind, nor in the possibility of obtaining a mule; that is, on the supposition that the Tacsonias are capable of breeding among each other, and that the "something peculiar in their appearance" foretells the fertility of their union.

It is well known, that the fruit of ten or more species of the Passion flower are good for eating, and also that of three kinds of Tacsonias; and this circumstance is not to be overlooked when experiments in cross-breeding are entertained. *Tacsonia mollissima* crossed with *Passiflora edulis*, or *incarnata*, would procure us a plant with a more hardy constitution than either of the latter, with the chance of an improved fruit in addition. On their proper cultivation it is not our province to enter. Mr. Appleby and Mr. Beaton have each, in their turn, described their culture lately in these pages. Mr. Lobb sent home *Tacsonia mollissima*, and Mr. Hartweg met with others, and particularly a yellow one,

* The *Gardeners' Magazine of Botany* is wrong in saying—introduced in 1847.

from the City of Lima, which did not bear the home-urney, and remain yet to be introduced. We may, re, look forward with hope to the opening of the a route for these, and still greater, acquisitions from atorial Andes.

mia manicata has been found in Peru at an elevation feet above the sea, where a climate occurs not much g from that of our southern coasts. The *bracts* of nt are entire, downy, united at their base, and longer e calyx-tube. *Leaves*, downy beneath, smooth above, divided into three saw-edged lobes; leaf-stalks l. *Stipules*, purple, roundish, toothed-crested. It omed in the conservatory of A. F. Slade, Esq., at urst, whose gardener says it requires room, and is nt of much pruning.

E-LEAVED SEASIDE-GRAPE (*Coccoloba macro-*.—*Botanical Magazine*, t. 4536.—Jacquin, an n botanist and voluminous botanical author, is thority for this genus, which he named and ed in his *Stirpium Americanarum Historia*, in It was founded on the Seaside-Grape of Jamaica, *ba uvifera;* a tree of large size, from whose grape-it a kind of *kino* has been prepared, rivalling in ency gum kino itself. The name is derived from a berry, and *lobos*, a lobe, alluding to the forma-the fruit; *macrophylla* means large-leaved. The of this genus have eight stamens and three which refer them to the eighth class and third f the Linnæan system, 8-*Octandria* 3-*Trigynia;* the natural classification of Jussieu, they are d with *Buckwheats* (Polygonaceæ). The grape, ant-like berries of the Seaside-Grape, are eatable, a sharp pleasant taste; but it was the succulent oloured calyx which enveloped the fruit, that sug-the name of Seaside-Grape. That such gigantic s many of the Coccolobas are, should be in close with our *Persicarias*, *Docks*, *Rhubarb*, and *Sorrel*, nothing of those numerous weeds found in *Polygonum* itself, is sufficiently curious. They are all apetalous; that is, having no petals to their flowers. They thus, at once, refute the doctrine that plants have any office assigned to them by nature, beyond that of adding a charm to the "flowers of the field." *

A farinaceous food, for the use of man, is obtained from the buckwheat; tarts and tonic medicines from the leaf-stalks and roots of rhubarb; an agreeable acid from sorrels; Polygonæ, as astringents, are in repute with practitioners in all parts of the world, and even in the inhospitable regions of the North Pole they are met with in the genus *Oxyria;* dyes and dyewoods they also yield, the wood of our Coccoloba dyeing red; and Mr. Backhouse tells us that pies and puddings are made, in the penal settlements of Australia, from the currant-like berries of *Muhlenberghia adpressa*, or the Australian Seaside-Grape, which is the very next genus in affinity to the West Indian original plants of that name. We may add, that a legion of medicinal attributes are ascribed to this large order of no-petalled flowers, in both hemispheres.

Coccoloba macrophylla bloomed, for the first time, in the large stove of the Kew Gardens, during 1850. It is believed to be a native of South America. The name is not appropriate, for the leaves are three-fourths smaller than those of *C. pubescens*. Heighth, twenty to twenty-three feet, crowned with a dense club-shaped raceme of the richest scarlet flowers, which continue in beauty for two months, July and August. *Stem*, furrowed, erect, almost unbranched, leafy from the bottom to top. *Leaves*, stem-clasping, alternate, dark green, distant from each other, heart-shaped, sharp-pointed, wrinkled, and strongly nerved. *Raceme*, cylindrical, two feet long; stigmas yellow; berries red. May be propagated by cuttings, and thrives in a light loam.

B. J.

THE FRUIT-GARDEN.

FORMATION OF FRUIT AND KITCHEN-GARDENS.

(*Continued from page* 304.)

SELECTION AND DISPOSAL OF FRUITS.—It will be remembered, that we had previously brought this subject to a close, with the exception of the promised fruit lists, and their adaptation to the proposed trellises. The latter is now the subject in hand, and it is necessary to make a few preliminary remarks, in order to pave the way to a clear understanding of the subject.

In the *first place*, as climates differ so much, and we are anxious not to mislead, it may be observed, that we think it well to propound a scheme for about the centre of England. Those who live much north and south of such position, therefore, must learn to make allowances in that respect.

Secondly. The lists are as much condensed as possible, scarcely any but *well-known* and *good* fruits being included; *selection*, not *collection*, being the aim.

Thirdly. The *most general* names alone are given. Synonyms would have trespassed too much on our limits.

Fourthly. A few novelties being introduced, some apology may appear necessary. As such, we may urge the great respectability of such authorities as Mr. Rivers.

ABBREVIATIONS.

(I.) Inclined trellis. (T.) Table trellis. (S.) Saddle trellis. (P.) Perpendicular trellis. (Asp.) Aspect on wall. (Slip.) All exterior ground, whether the trees be dwarf standards, ordinary standards, or pyramids.

APPLES.

1. *Ashmead's Kernel;* table. November to May. S. P. Slip.
2. *Alfriston;* kitchen. November to April. Slip.
3. *Pearson's Plate;* table. November to April. S. P.
4. *Kerry Pippin;* table. September to October. T. P. Slip.
5. *White Juneating;* table. July. P. Slip.
6. *Ord apple;* table. February to May. I T.

* This is not logical. Are not stamens usually essential, though not found in ferns?—ED. C. G.

7. *Keswick Codling;* kitchen. August to September. Slip.
8. *Manks Codling;* kitchen. August to January. Slip.
9. *Dumelow's Seedling;* kitchen. November to April. Slip.
10. *Gooseberry apple;* kitchen. March to May. Slip.
11. *Gravenstein;* kitchen, table. November, December. S. P.
12. *Red Juneating;* table. July. S.
13. *Hick's Fancy;* table. November, December. S. P.
14. *Margil;* table. November to January. P. S.
15. *Sturmer Pippin;* table. February to June. P. S. T.
16. *Nonpariel* (old); table. November to April. T. S. P.
17. ——— *Pitmaston;* table. November to March.
18. ——— *Braddick's;* table. February to March. T. S. P.
19. ——— *Ross';* table. November, December. S. P. Slip.
20. *Pearmain, Adam's;* table. November, December. P. S. Slip.
21. ——— *Lamb-abbey;* December, May. S. T. P. Slip.
22. *Reinette, golden;* table. October, November. S. P. Slip.
23. *Ribston Pippin;* table. November, March. P. S. Slip.
24. *John apple;* kitchen. November to May. Slip.
25. *Hawthornden;* kitchen. October to December. P. Slip.
26. *Russet, Boston;* kitchen, table. February, March. P. S. Slip.

PEARS.

1. *Aston Town.* November. P. Slip.
2. *Brown Beurré.* October. I. East or west asp.
3. *Beurré Rance.* March to May. S. P. East wall.
4. *Beurré Diel.* November, December. P. Slip.
5. *Beurré de Capiaumont.* October. S. P. Slip.
6. ——— *d'Amalis.* September. P. Slip.
7. ——— *d'Aremberg.* December. East or west asp. I. T.
8. ——— *Easter.* December to February. S. P. Slip.
9. ——— *Langelior.* December, January. I. S. East or west asp.
10. *Williams's Bon Chrétien.* September, October. Slip.
11. *Délices d'Hardenpont.* October. P. Slip.
12. *Althorp Crassanne.* November. P. S. Slip.
13. *Doyenné d'Hiver Nouveau.* January to May. I. S.
14. *Duchesse d'Angoulême.* November. S. P.
15. *Dunmore.* September. P. Slip.
16. *Fondante d'Automne.* October. S. P. Slip.
17. *Forelle.* December. S. P.
18. *Glout Morceau.* December. S. I. T.
19. *Hacon's Incomparable.* December. P. Slip.
20. *Jargonelle.* August. P. East or west asp. Slip.
21. *Josephine de Malines.* February to May. East or west asp. I.
22. *Louis Bonne of Jersey.* October. Slip. P. S.
23. *Marie Louise.* November. S. East or west asp.
24. *Monarch* (Knight's). January. East or west asp. I. T.
25. *Orpheline d'Enghein.* January to March. I. T. East or west asp.
26. *Passe Colmar.* December, January. East or west asp. I. T.
27. *Seckle.* September. S. P.
28. *Thompson's.* November. T. S. East or west asp.
29. *Urbaniste.* November. S. P.
30. *Van Mon's Leon le Clerc.* February, March. S. I.
31. *Vicar of Winkfield.* December, January. East or west asp. I.
32. *Swan's Egg.* November. Sl.,

STEWING [illegible]

33. *Catillac.* February. S
34. *Bon Chrétien.* [illegible]
35. *Summe* [illegible]

4. *Late Newington.* September, October. South asp.
5. *Pitmaston Orange.* September. South asp.

PLUMS.

1. *Early Favorite.* July. I. T. Slip. East asp.
2. *Morocco.* July. T. East or west asp.
3. *Precoce de Tours.* July. I. P. East or west asp. Slip.
4. *Orleans* (Smith's). August. T. P. East and north asp. Slip.
5. *Reine Claude Violette.* September. East or west.
6. *Greengage.* September. East or west asp. S. P. Slip.
7. *Golden Drop.* September. P. Slip.
8. *Denniston's Superb.* September. P. East or west asp.
9. *Imperatrice* (Ickworth's). October. East or west asp. I.
10. *Jefferson.* September. P. East or west asp.
11. *White Magnum Bonum.* Sept. P. Slip. North asp.
12. *Quetsche St. Martin's.* October. P. East or west asp.
13. *Saint Catherine.* Sept. P. East or west asp.
14. *Wine Sour.* September. Slip.

CHERRIES.

1. *Early Purple Griotte.* May. South or east asp. I.
2. *May Duke.* June. South or east asp. I.
3. *Late Duke.* August, September. P. East, west, and north asp.
4. *Royal Duke.* July. East or west asp. I.
5. *Bigarreau* (white). August. P. Slip.
6. *Waterloo.* August. P. Slip.
7. *Black Eagle.* August. Slip.
8. *Elton.* July, August. East or west asp. P.
9. *Florence.* September. East or west asp.
10. *Morello.* September to November. North asp. T. P.
11. ——— (Buttner's). October, November. North asp. T. P.
12. *Kentish.* Slip.

APRICOTS.

1. *Blenheim* or *Shipley's.* July. South or east asp. I. T.
2. *Breda.* August. P. I.
3. *Royal.* August. South or east asp. I.
4. *Gros Rouge.* August. East or west asp. I.
5. *Moor Park.* August, September. South asp.

We fear the lists here set forth, with their abbreviations, will, at first sight, somewhat puzzle some of our readers. Such must remember, that abbreviations become absolutely necessary. They are, however, sufficiently plain, and five minutes consideration *will* render them quite familiar. Thus, we will take for instance, the *Beurré d'Aremberg* Pear, No. 7 on our list, where it stands thus: east or west asp. I. T. The meaning of which is, that those who have limited gardens, should (in selecting this kind) place a tree on a wall facing east or west, and that, if another or two are required, one may first be placed on the inclined trellis (see abbreviations); and if a third, on the table trellis. And so with all the rest.

It will thus be understood, that the *first suggestion*, whether wall or any of the trellises, has most weight, as to a single tree, and that the certainty of success decreases in a corresponding ratio with the increase of the abbreviatory marks.

Persons of much practical experience, living farther north or south, may feel inclined to differ with some of the suggestions; and no wonder. Perhaps no two practical men in Britain would produce two similar lists, having a variety of trellises and aspects to deal with. Those who would fain cavil, however, have the remedy in their own hands; let them show forth a better scheme, and we will try and become converts.

We have numbered each group, and such numbers will serve to refer to on some future occasions; for as the pages of THE COTTAGE GARDENER are not of leviathan proportions, we are obliged to deal with them in a cubical, rather than a superficial way. We have heard of the gold beater, and such-like artists, spinning out their material to an almost indefinite length; this process will not do for us.

We would here remind our readers of the very great

ı to be derived from the adoption of trellises, d the platform principle be adopted, and that the ɔrepared with a *special* reference to the habits of d intended for the station. The latter is, indeed, the chief elements of successful culture; for who ıt know, that in any one family of fruits, one kind e gross, almost to wildness; another shall be ', nay, even weak in appearance; whilst a third e a happy medium between the two. Take tance, the Manks Codling apple — who ever his growing too luxuriant? It will grow strong, y, but what is the consequence? Why, that it ɔom on the last year's wood almost to the very

Let, however, any one take the Dumelow's g, and highly excite it in a young state, with ting composts, and he will not gather a peck of for some seven years after planting: and there ers more strongly illustrative of this principle e "Dumelow." Again, amongst cherries—Take ge leaved section, of which we may offer the ıu as a type, and compare it with the Morello; ɔuld attempt to give both equal treatment? ɣers thinks the Mahaleb stock will cure all these ies; we feel some slight doubts about it at ; albeit, it is shewing a good deal of temerity to om so good an authority.

now we offer an opinion still further in favour of ; and it is, that when these things are well out, with a due attention to the main principles, ɔre will be small occasion for orchard houses any outh of York. Not that we would for a moment uch structures; but, economic as they are, there usands who cannot afford to dabble much this d yet can perhaps put up a few yards of trellising.

R. Errington.

THE FLOWER-GARDEN.

splanting.—I have been seeking an opportunity, e weeks back, to write a paper on transplanting ees or shrubs as one meets with in or near a arden; and, at the outset, I would strongly those who cannot command the services of an ıced transplanter, not to be in a great hurry ey determine on removing any favourite tree or ut first to prepare the roots in a proper manner ıonths previously to removal. Any one, therefo ho will be influenced by this advice, will not .ke such work this spring.

now too late to remove large trees of any kind, ɔems a settled opinion among all gardeners that vergreens should not be removed at all in the though I equally think there are few gardeners rience to be found who would hesitate to remove ·green of any size any week in the whole year, ıt, in fact, evergreens have been so removed with or many years back; but that is no reason why ırite Arbutus, Cedar of Lebanon, or a Portugal should be experimented upon by persons unac- d with such works, except at a season when the ; number of chances are in their favour, and ıen, only after all the roots had been prepared change.

lows, that all which I mean to show or advise to ı this spring, is the proper way of managing the nd to repeat, what I have often said, that July, , and September are the best months to remove *ns*, and October and November the best for *ıs* trees and shrubs, that is, for plants of a large Young stock of either class will do, with ordinary ther at the end of the autumn or in the spring. il in the park here, and about the garden, is so ıd often so shallow over sand, chalk, or gravel, that the removal of large trees is a dangerous work if the following summer is very dry; so that we have found it necessary, for some years, to depart from the more usual routine, and in time we have established a system of our own. I am now so far convinced of the superiority of this plan, both in removing large trees, and in the previous way of managing their roots, over the best plans hitherto set forth, that I have full confidence in recommending it, not only to amateurs, but to all my brother gardeners and foresters. Gardeners will see the advantages of the system at once, when I say that a full-grown tree may be removed, with three or four tons of soil about the roots, without laying the least strain on either roots or branches, or on men's arms, in any way farther than what is necessary with spades, forks, and picks.

Let us first begin by preparing the roots, for the next six weeks is, perhaps, as good a time for this part of the work as any other, if not the best. All we gardeners are well aware that trees derive the greater part of their nourishment, during a hot summer, from those roots which go down in the soil, rather than from those which spread right and left near the surface, where no moisture exists at such times; and fruit-growers are as well aware that when these down-roots, or tap-roots, get into a damp bed much below the surface, the trees grow either too fast or become cankered. Therefore, the first part of the business is to get at the tap-roots, cut them off, and so force the tree for one season to feed by the surface-roots. The growth from this feeding is not so much as formerly, but it is better ripened, and short well-ripened wood is preferred at planting time. Then, the cut ends of the tap-roots are healed over, and a beard of small fibrous roots formed all round, and in this condition a tree suffers very little indeed if it is removed at the proper time. The usual way of preparing the roots for removal, is by cutting a trench all round a plant, at a certain distance from the stem, and as deep as the side-roots are found—then to fill the trench with the same, or with better, soil, and this is the way that we have hitherto directed in The Cottage Gardener; but now that I have had sufficient proofs to back me, I say at once the plan, old as it is, is on a wrong principle. The side-shoots should not be interfered with until the day the tree or shrub is to be removed, except in a few cases, where the kind of tree is difficult to remove with safety—say a *Cedar of Lebanon*, or an *Evergreen Oak;* but I shall take a view of exceptionals by-and-by. Now, let us suppose a large *Portugal Laurel* before us, on level ground, and that we are to go about it according to the newest fashion for removal. At the end of next July—the best time for the Portugal Laurels—five or six feet from the stem, mark off a square of four feet on the side, and dig it out a yard deep. In a less space, a handy man could work a spade right or left, or straight forward, with ease; but as all men are not equally handy in a square pit, let us say four feet instead of three. If any of the side-roots were in this space, they were cut, and there was no help for it; but the man is now in the pit, and he must be told that no more side-roots are to be cut on any account, but that he may now work his way to the stem of the laurel by loosening the face of the bank before him with a fork or pick, throwing out part of the soil, and casting the rest behind him in the pit, so as to lessen his task. This is only a small section of the kind of labour necessary in removing large trees—the side-roots are taken care of, and the man gets as near the stem of the tree as these roots will allow him, in an open trench, and it often happens that the very side of the stem or collar of the plant is reached without any impediments from the roots. The trench just under the side of the tree need not be more than two feet deep, so that the man is working his way *up* to the

tree. Here it may be asked—Why not begin with a two feet deep trench at once? but the answer belongs to another part of the story, and we shall hear it after awhile. Now the tree is to be tunnelled under, working carefully with the fork only to bare the roots, the loose earth to be removed by the spade. Any of the roots that are deeper than two feet, are soon found, but not, if possible, until the tunnel is forced two feet beyond the tree. In loose soil, this is more necessary, as, if the roots are cut sooner, the upper part, or roof, of the tunnel is liable to fall in. Suppose now that one large tap-root is found going down in a perpendicular direction, and several smaller ones not far from it; direct the man to pick the roof of the tunnel very carefully with the fork—still leaving the roots uncut—and the nearer he can get up to the bottom of the tree, without hurting small fibrous roots, the better; if he gets to within a foot or a little more of the surface, it will suffice; then, with a small saw, let him saw off the tap-roots as high as the roof of his tunnel will allow; let him also cut off the bottom parts as low as he can, because opening this tunnel will be the first part of getting up the plant next July or next July twelvemonths. The roots being thus cut and smoothed at the cut ends with a knife, fill in the tunnel again, trench and all, and the work is finished nearly in as short a time as it takes to write about it.

The next plant, let us suppose, is on the side of a hill or bank, or say some uneven ground, and always, when that happens, begin the trench on the upper side, because the roof or sides of the opening are very apt to slip in if the lower side is opened for getting at the bottom roots. When the time comes round to remove a plant thus prepared, the same trench is opened nearly in the same way as before, only the end farthest from the tree will have to be made into an easy slope, as it is intended for the ball to be drawn away along this slope, and the plant being on uneven ground, the lower side must be opened first, as it is easier to pull down the hill than the contrary way. When the opening is clear under the tree and a couple of feet beyond it, a similar opening is made on the opposite side; and now a four feet wide passage is free right under the tree, and, unless the soil is very light indeed, the surface-roots will hold up the soil over the passage: but our soil here does not do that in some cases, so that we are obliged to support the roof by a thick plank let in, and supported at each end, until the whole passage is cleared out. Our planting, or, rather, our carrying truck, is of the simplest form—four feet long, and nearly as wide, running upon two rollers, with a strong iron ring at each corner, so that it may be drawn by either end, backwards or forwards, as easily as a railway truck; it stands about a foot high, with only a flat top. When the passage under the tree is ready for this truck to enter, two garden planks are set down first, and the rollers set on them, and pushed along till the centre of the tree or ball is just over the centre of the truck; then the surface roots are disengaged in the usual way, by opening a trench at a certain dista[illegible] from the stem, and forking away the soil gradually [illegible] of the small roots are very numerous, they are [illegible] cradles for mo[illegible]curity and in a short [illegible] six feet [illegible]iameter s formed, an[illegible] head [illegible] whe[illegible] you p[illegible] got [illegible] or [illegible] [illegible] [illegible]

g, cut down, and repotted, they do well under
le of creepers, or even of vines, but they must
sed to unshaded light by the middle of August.
lual exposure, I have placed them full in the
t of doors, in the autumn, and they flowered
dly. But there is danger in getting the foliage
l, which is prevented, if they can be allowed to
a house or pit unshaded.

is grandifolius (Bletia Tankervilliæ).—The treat-
this plant, for greenhouse decoration, has been
given. I introduce it here for the purpose of
ding the following fact, to show that general
ave their exceptions. When done flowering,
ged to grow, repotted or divided, every encou-
it is given until autumn, when the plants are
l, and *dryish* during the winter. When placed
her temperature, the flower-stems soon begin to
hen water should be pretty freely given to
em to come strong. If kept dry and very cool
e time after the stems appear, they will almost
to be weak. When a few of the lower flowers
expand, the plants will continue to do well in
m end of a common greenhouse. When moving
nts to plunge them in a pit for their winter
, I noticed that a small plant, with two pseudo-
was showing three stout flower-stems, even
it had received no *check*, or *rest*, whatever; and
nt being encouraged with a little extra heat, has
the conservatory for more than two months, and
its flower-buds are not yet open. The flower-
f the other plants are just beginning to peep,
l, ere long, be removed to a vinery for a time,
ransferring them to the conservatory. The little
lowering as above, was merely a matter of hap-
so far as cultivation and care were concerned;
by early growing and early resting, we could
upon getting this fine old plant into full bloom
mber and December, it would add greatly to the
of our conservatories, at a time when flowers are
cest. The small plant alluded to, has, when in
been several times in a temperature below 40°;
al, the temperature has ranged from 45° to 48°,
plant stood at the greatest distance from the
rs. The genus, however, must have the heat
oderate stove when growing, and again when
it into bloom.

he other tender plants, previously mentioned,
ne better than usual this winter—one of the very
the *Epiphyllum truncatum*. There are several
of this species, and a pretty pink species, *Rus-*
, more slender in its habits; but the old one is
best for winter work. If merely kept in the
use, it will generally commence blooming there
mber. Many plants did so here this season;
en nearly done blooming, were removed to a
use, where plenty of air was on night and day,
being merely excluded, the intention being to
em to remain there until they could obtain,
y, a little more heat to encourage fresh growth.
maining there a few weeks, a second set of small
ds began to show themselves; and, by placing
ts in heat, they have bloomed a second time,
ell as the first time, but still very fairly and
bly. As soon as they are finished flowering,
l be encouraged to make fresh growth, shifted
h open compost if necessary, placed out of
ll in the sun, in August and September, housed
t dry in October and the first part of November.
ost so many fine plants, from being grafted on
aculeata, that I have lately used as a stock the
speciossimus, and though the plants are yet
they seem as if they would never suffer from
ich constituted their ruin in the other case,
the insufficiency of the stock to convey enough
of nourishment to the scion, when that swelled out to a huge head like an umbrella.

2ndly. I will now add a few more plants as suitable companions to those previously given. *Centradenia rosea*, a small, compact growing semi-shrubby and semi-herbaceous plant, of a very elegant habit, and enveloped in winter and spring with its small pink flowers. The plant will succeed, so far as growth is concerned, in a moderately warm greenhouse; but it will not flower so freely, nor look so healthy, as when it is encouraged with a warmer temperature for a short time when growing, and before flowering. When the flowers are nearly done with in a moderate greenhouse, the removing of the plant to a warmer place for a week, or a fortnight, will render it again as beautiful as ever. The flowers, at the best of times, being small, the chief interest in the plant consists in its peculiar graceful habit and appearance. The genus is allied to *Melastoma*, and was introduced from Mexico seven or eight years ago.

Franciscea.—This genus belongs to the order of Figworts. The two species most applicable for this purpose are *F. Hopeana* (called also *uniflora*) and *F. latifolia*. The colour of both is bluish purple, shading off sometime before the flower falls to a pure white. The blossom of the first is about the size of a shilling; and the flower of the latter, a little larger than a crown piece: both plants are very beautiful, and also sweet-scented. The first is a native of Brazil; the latter of Rio Janeiro. Treated as stove plants, they are evergreens; but the flowers do not last so long as in colder temperature. Treated entirely as greenhouse plants, the plants become *deciduous*, or nearly so; but if the wood is well ripened, as the advancing heat of the spring comes on, they will bloom as profusely as in a stove, and continue to do so longer. Treated upon an intermediate plan, giving them a little extra heat to make a short growth, resting them again for a short time in bright light, giving them another lift with heat, and then, when in bloom, resting them in a cool temperature, the same plant will bloom several times during the season. If ever the plants are much below 45°, they will lose their leaves; if below 40°, they will be injured; if from 45° to 50°, they will open their blossoms freely; from 50° to 60°, will be sufficent both for starting into growth, and starting into flower. A large plant of *Hopeana* has not been out of the conservatory since last spring. It has been seldom below 45°; in a sunny day it would be at least 10° higher. It is just now covered with buds, swelling, and a few days, in a temperature of 60°, or even 55°, would bring it into full bloom. A large plant of *latifolia* had been so starved, that it lost all its leaves by the beginning of November. The wood being firm, it was moved into a temperature of 55°, and in three weeks or so, was in bloom, and now it has formed one of a group along with *Poinsettias*, *Euphorbias*, &c., for two months in the conservatory, and its beauty is not yet gone. I forget how often these two plants bloomed last season, and never were unwelcome, because they are so sweet. All who have a warm greenhouse, or a cold greenhouse with a warm pit, need have no fears of growing them well. Rough peat and lumpy loam, with pieces of charcoal, suit them well. Cuttings of small firm young shoots, inserted in sand under a bell-glass, and plunged in a gentle bottom heat, will root, but not very quickly or freely; at least, they have taxed my patience several times. Manure water may be given when growing, and when in bloom. As the flowers are produced upon the young wood, it is advisable to avoid strong shoots, and to have the whole of the plant covered with stubby shoots, resembling short snags, which will thus ensure the bloom being general, and in a complete mass.

Begonia.—This is the last genus I shall mention at present, and chiefly for recommending to all and sundry, who have got a conservatory or a greenhouse, the beau-

[illegible] *flowering* I *mexicana*. [illegible]
[illegible] *graveolens* I [illegible]
[illegible] *Ammi majus* [illegible]
[illegible] *Bishop's weed* [illegible]
[illegible] *Carum carvi* [illegible]
[illegible] *Caucalis daucoides* [illegible]
[illegible] *Conium maculatum* [illegible]
[illegible] *Coriandrum sativum* [illegible]
[illegible] *Daucus carota* [illegible]
[illegible] *Eryngium* [illegible]
[illegible] *Foeniculum vulgare* [illegible]
[illegible] *Hydrocotyle* [illegible]
[illegible] *Pimpinella anisum* [illegible]
[illegible] *Sanicula* [illegible]
[illegible] *Scandix pecten* [illegible]
[illegible] *Smyrnium olusatrum* [illegible]
[illegible] *Torilis anthriscus* [illegible]
[illegible] *Trinia* [illegible]
[illegible] *Umbilicus pendulinus* [illegible]
[illegible] *Valeriana* [illegible]
[illegible] *Viola* [illegible]

[illegible]

[illegible] *continued from page 317*

[illegible]

D. FIMBRIATUM (Fringed D.); Nepal.—The whole flower is of a clear pale yellow, with the lip elegantly fringed. This, when well grown, and freely bloomed, is a truly beautiful species. 21s. Whilst we had the management of the orchids belonging to T. Brocklehurst, Esq., we had the good fortune to grow and bloom a very fine specimen. It measured three feet high, and as much through, and had upwards of two thousand flowers upon it. It was exhibited at Manchester, at the Botanic Garden exhibition, and obtained a premier prize.

D. FORMOSUM (Handsome D.); Khoosea Hills.—Sepals and petals ivory white, and very transparent; the lip is the same colour, but has a diamond-shaped pale yellow spot in the centre. The flowers are very large and handsome, and the plant itself is very ornamental. Till lately, this species was very scarce, but a large importation was received by Messrs. Veitch and Son, from their indefatigable collector, Mr. Lobb, the greater part of which were brought to the hammer in Mr. Stevens's rooms, in King-street, where they were sold at moderate prices,—so that now, instead of ten guineas a plant, a very fair plant may be had for 31s. 6d., and a small one for 21s.

D. GIBSONII (Mr. Gibson's D.); Khoosea Hills.—Sepals and petals dark orange; lip bright yellow, with two dark purple spots on it. Mr. Gibson says, he 'found this plant growing on rocks, but so situated, that during the rainy season the mountain stream washed completely over the tops of the plants." This shows the necessity of frequently and plentifully syringing over the plant when it is growing. It is a fine species. 42s.

D. HETEROCARPUM (Various-podded D.); Khoosea Hills.—The flowers are pale yellow, with faint pink stripes. It is very fragrant. 31s. 6d.

D. HEYNEANUM (Mrs. Heyne's); Bombay.—The flowers are produced on long, drooping racemes; they are pure white. There is a variety with a shade of pink in the bloom. It is a pretty species. 42s.

D. IONOSMUM (Sweet-scented D.); E. Indies.—Sepals and petals purplish lilac, beautifully veined with dark purple. It is very fragrant. This is a rare and splendid species. 210s.

D. MONILIFORME (Bracelet-formed D.); China.—Sepals, petals, and lip of the most beautiful rose colour on the upper part, shading down to the centre into a pure white. Nothing can exceed the beauty and delicacy of these flowers. They are freely produced on bracelet-formed pseudo-bulbs, in two's and three's. Like *D. denudiflorum*, the season of their flowering may be lengthened, by keeping the plants in a very cool house through winter and the early months of spring. By this treatment, they may be successfully prevented from flowering till the May exhibitions take place, though the usual season is March and April. Every grower of orchids ought to possess this charming species. 21s.

D. MOSCHATUM (Musk-scented D.); Pegu.—Sepals and petals are yellow, striped with cream; the lip is egg-shaped, of the same colour, but richly striped with dark crimson in the inside. A strong-growing, fine species. The flowers are very large—nearly four inches across—and smell strongly, like musk. There is not a very great difference between this species and *D. calceolaria*, and *D. cupreum*. Where there is plenty of room, this plant is very desirable. 21s.

D. NOBILE (Noble D.); China.—Sepals and petals blush white, tipped with bright rosy pink; lip large, nearly round, not pointed like that of *D. cærulescens*, yellowish at the base, with a dark purple blotch at the end, edged with pink. These are quite sufficient characteristics to distinguish this fine species from any other. The colours may be much heightened by a full exposure to the light, near to the glass. This effect was proved by Mr. Green, gardener to Sir E. Antrobus. Two or three years ago, he exhibited a well-grown specimen, so highly coloured as even to deceive the judges, who thought it a splendid new variety; but he assured us, that it was the real species, only subjected to a high degree of light. There are, however, several varieties of this truly noble species. One, named *D. nobile major*, has flowers full one-third larger; another, named *D. Wallichiana*, is of a more dwarf and stouter habit; but the differences between them all are very slight. Every grower of orchids must have this fine, easily-grown species in his collection, especially when he considers its comparative cheapness: a good plant showing bloom may be had for a guinea, and a small healthy one, that will flower the next year, for half the money.

T. APPLEBY.

(To be continued.)

FLORISTS' FLOWERS.

THE TULIP.—This mild weather is bringing up the tulips very fast; and, as we may reasonably fear frosts will yet come pretty strong, the florist must keep wide awake, and be ready to protect them quite securely from its dire effects. It may often happen, during this month, that a wet evening will be succeeded by a sharp frosty morning; and it is such sudden changes that do much mischief. The leaves of the tulip, as is well known, come up in pairs, and form a kind of cup, which in rainy weather retains the water. Now, if this becomes frozen, the tissue of the tender leaves will be irreparably injured, will turn yellow, and the bloom will be ruined. Against such evil we lift our warning voice; because, if the freezing occurs, there is no cure for this season, at least. Therefore, we say, cover up *every* night; and, if the morning is fine, uncover early, and no harm is done; but, if frost intervenes then, how pleasant it is to reflect, that we have saved our bloom by a little care, foresight, and trouble.

T. APPLEBY.

THE KITCHEN-GARDEN.

THE season is now advancing, and it is very possible that, with those who did not get well forward with their gardening operations previous to the late continual rains, some matters may be getting rather behind. With us, in Devonshire, a great quantity of rain fell in January; it rained, indeed, every day, little or much, throughout the month. Should the weather now continue more favourable for a few weeks to come, much will be required to be done, and due advantage must be taken of the opportunity for applying manure, trenching, ridging, surface scarifying, and hoeing the surface of the earth amongst every kind of crop, and forking over the ridged, trenched, and dug ground; it cannot be too often performed, if the weather be only favourable for the operation. We have many times attended to such work by moonlight, or very early in the morning, in order to keep pace with the season's operations; for we always consider that where there is a will there is a way, and a time for doing all things; and a little extra exertion in such preparation of the soil is amply repaid: first, by securing a kindly friable seed-bed, wherein the seed, if a fine day is chosen for sowing, is sure to germinate quickly, and send forth strong plants, that will grow quickly and luxuriantly, if after encouragement is also well attended to, by surface-stirring, hoeing, and duly thinning; no matter what the season may be, the produce of crops thus kept in order will be abundant, and of the best quality; as to slugs, grubs, snails, or wire-worm, they would be nearly eradicated; and if such culture were continued from year to year, these pests would become scarce; weeds, too, would never be seen at any season. We are always vexed to hear people talk of hoeing down weeds, because, if the soil is pro-

perly cropped and managed, no weeds will have a chance of making their appearance, or vermin either.

The soil, if the foregoing observations are well carried out, never requires rest, all that is needed, is to have seed and plants always in readiness for each and every piece of ground immediately it becomes vacant. Another fact, too, is that soil, well managed, does not require half the quantity of seed provided or sown for cropping, that is required for inferior managed soil; neither is there any risk of robbery, either by weed or vermin; nor is the trouble or expense of the high cultivation system so great in the end, as is the slovenly, weedy, behind-hand system of management; the former keeping the soil always in condition, and ready, when suitable weather prevails; while the latter has too frequently to undergo a partial or imperfect system of cleansing, just at the very time when it should have been ready for receiving the seed or plants, and then, in consequence of unfavourable weather for performing such operations, the season, perhaps, gets too far advanced to insure strong plants, and those produced, under such a system, are always more than usually subject to disease, stagnation, and vermin,—commonly termed blights.

FRAMING.—*Cucumbers* and *Melons* should be sown in succession, and seedlings potted off as soon as they can be handled, taking care not to bury the stem. Place these in a kindly heat, close to the glass; keep their surface stirred with a small pointed stick; stop them at the first joint, after one rough leaf is made; shift them early, and take care to have a kindly heat and soil to turn or ridge them out on; increase the heat about those early turned out, and to the cucumbers now in bearing, as the days and nights increase, apply weak tepid liquid-manure to commence with, increasing its strength as the plants advance in fruit-bearing.

Mint and *Tarragon* may now be forwarded, by placing over them a hand-glass, small boarded frame, box, or sea-kale pot, with a few boughs or light straw. *Mustard* and *Cress* may be produced in the cottage window on a small portion of soil placed in anything, or even sown on damp flannel. *Radishes* and *Corn Sallad* should be sown in succession. *Mushroom-beds* made, as previously directed, with good stable manure, and healthy-holding loam, and those beds that have been some time in bearing should have a supply of tepid manure water.

CHARRING EARTH.—Every kind of material may be charred and turned to account for the cultivation of the soil. Course, sour, or weedy earth may easily be charred, and made a valuable manure; and the month of March is often an advantageous time for performing this operation, on account of its drying windy days and frosty nights, which act so favourably in drying. Close, heavy, adhesive soils that are to be found under hedges, all waste corners, &c., may be dug up roughly, placed edgeways or in ridges to dry partially, and may then be charred in conical heaps or in continuous ridges. The best system for performing it is to place three rough stakes triangle-shape for the centre flue or chimney, as directed in the last number for garden refuse; if intended for a conical kiln, or at intervals of ten or twelve feet, if in a continuous ridge, the intervals, or distance, that the flues or chimneys are to be placed, should be regulated, of course, by the width and intended height the ridge is to be packed. To commence packing, in the first place, the interior of the chimney should be blocked with a piece of wood for the three stakes to be bound too, after first placing a small portion of easily-ignitable materials inside at the base. This centre piece of wood is to prevent the others from collapsing while the kiln is packing, and to be drawn out when the kiln is ready to be ignited. If there is not a tolerable quantity of vegetation, to mix with the sods intended to be charred, a small portion of hedge-trimmings, refuse wood, timber-yard chips, saw or wood-dust, or tan, or other rubbish, should be worked in as the process of packing goes on; first, by placing round the base of the chimney a small portion that is likely to be easily ignited, then some of the driest sods next it. The kiln may then be packed to the desired height and width, as the materials fall to hand, leaving the crumbs and fine earth to be added for the last casing, to prevent flare. The same principle holds good for charring in ridges of any continuous length. Nothing more has now to be done except withdrawing the centre chimney-stick, and introducing the fire at the summit, and when it has sufficiently taken hold at the base, to place over the summit a sod, and introduce draft-holes at the side, or all round at first, within a short distance of the summit, and thus continue to make them lower, and blocking the uppermost as the charring process goes on; blocking with a case of fine earth the whole at last, and making it air-tight. In order to smother the fire, a little water may be introduced into the centre, and be immediately blocked in with a sod, to prevent the evaporation from escaping. This latter process, of course, is not required till all is properly charred: after which it may be stored in the dry or temporary thatched place where it has been charred, if the time has not yet arrived for making use of it, and it should be required in the immediate locality where it has been charred; but be very careful not to let it get wet previous to being required for use.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

MANY years ago it was my delight to go and see a poor suffering woman, who had been afflicted, almost from her childhood, with many ailments, which had checked the enjoyments of youth, and deprived her of the strength and activity of maturer age; and when I first knew her, she was scarcely able to move across the small room in which she sat, and was a constant sufferer. She lived in what might be called a shed, built in the yard where once her parents lived, and in which her mother and herself had settled themselves, when the husband died and the son succeeded to the house and business. This small and miserable hut was divided into two apartments, in which two persons could with difficulty turn; but it was not until the mother's death that I knew anything of Hannah A——.

Her brother was a careless, indifferent man, with a dirty, ill-tempered wife, who grudged every kindness he seemed inclined to show to his afflicted sister; so that the walls of her two little rooms were neither properly plastered nor white-washed; they were all stained with damp and mildew, from the slight manner in which they were built; and a waggon which was backed against the corner of the shed, had rent the feeble brickwork, and left an opening nearly from the ceiling to the floor, through which the wind was allowed for years to whistle.

Yet even now I look back with pleasure to that cold and solitary dwelling, for it was the palace of content, and the pink of cleanliness. The moment a friend turned round the gable, and peeped through the little window, a joyful smile lighted the pale face of the inmate, as she sat by her fire in an easy chair lent her by those who truly regarded her; and the beautiful order and neatness of the two little rooms were refreshing to the eye, on entering. How she contrived

to be so exquisitely clean, with all her sicknesses and infirmities, I never could tell; but I believe, nay, I am sure, that those who are brought up to be thoroughly clean, can never be dirty, let their after circumstances be what they may; and Hannah's family had always been strictly cleanly in all their ways.

With the exception of the walls, which were always a trouble to her, not a grain of dust or dirt could be seen, no litter was ever laying about, no dirty corners, no cobwebs, or rags were to be found; but everything was in its place, and as clean as hands could make it. On the chair in the little bedroom, by the side of the cleanest quilt and curtains, stood a little basket containing the snow-white articles of linen she possessed, all mended and patched with care, but very few in number. How trifling are the *real wants* of man!

Every one liked to help Hannah, and she had many friends. The kind wife of the village butcher would send her in a little bit of meat sometimes, and her special friend, the laundress, washed for her for years, without seeking any return. The sawyer would often bring her a heap of sawdust, with which she backed up her fire; and others would remember her when they could spare a little from their Sunday meal. She was so clean, so uncomplaining, so thankful, and so patient, that no one ever wearied of doing her service; and she loved best of all, to be read to from the Book of books, for her own eyes were growing weak and dim. It seemed that the peace of God, did, indeed, dwell within those humble walls; for her trials were wonderfully softened, and her end was joy in the Lord.

From such a smiling picture, it is painful to turn to one of a very opposite character, in the case of Widow T——, who sits in her dirty, wretched cottage, the image of loathsome poverty. She has a more comfortable, cheerful dwelling than poor Hannah had; but she is innately dirty, and it is impossible to make her clean or comfortable. She sits rocking in a chair with all sorts of dirty rags hanging over it, her fireplace is rarely swept, a dirty saucepan and kettle are always boiling, a box stands close to her, on which are two or three dirty basins, and in the corner is a heap of wood, and coal, and dirt, and spiders, and all uncleanness. Her bodily sufferings are great and increasing, but there is no comfort in helping her; no one likes to go near her, or do anything for her; and her complaints of her neighbours' neglect, are as continual as poor Hannah's testimony was to their kindness and attention.

The poor are very seldom unkind to each other in sickness or helplessness. We have frequently witnessed their readiness and untiring exertions, where little except thanks could be returned; and it is a pleasure to bear this testimony to their kind heartedness. But with regard to Dame T—— there is no cheerful assistance given. The woman who is paid by the parish for waiting upon her hurries away as quickly as she can; and it is very rarely that a neighbour will go and sit a few minutes to cheer her loneliness. It is melancholy and distressing to see old age, and sickness, and poverty, stripped of all their charms—for charms there are in all, when they are borne as christians ought to bear them; and this poor old woman would be interesting in another way, if she were only clean and quiet in spirit like Hannah A——. She was the wife of a marine, who was lost in H.M.S. St. George, many years ago, and she had gone through many varied scenes with him. She had been with him in the West Indies; she remembers well the mutiny at the Nore; and almosts forgets her bodily anguish when relating all her adventures by sea and land. Her life has been a most eventful one; and probably her roving and unsettled habits may have led to much of the untidiness and wretchedness of her household ways; but she never could have been clean; she never could have had a love of neatness, or she would not, under any circumstances, be what she is.

If the poor knew how much more respectable they would be in the eyes of their neighbours, and of those in the higher classes, by clean and orderly habits—and if they were at all aware of the greater degrees of comfort they would experience themselves, in sickness and old age, from strict attention to them—they would not be so careless and so dirty as they often are, or allow their children to grow up idle and slatternly, to be dirty, untidy mothers in their turn.

In our attempts to help one another, we ought not to neglect the wants and sufferings of those who are disagreeable, improvident, and unsatisfactory; for God "sendeth rain upon the just, and upon the unjust," too; but we cannot help feeling how much more good to the one class of persons, our money or food do than to the other; and how disheartening it is to our earthly nature to show mercy, when so miserable a return is made! Let us, however, persevere in doing good, wherever we see sickness or destitution, in spite of our own tastes and preferences; and let us ever remember the patience and long-suffering of our Father towards *our* cold returns and base ingratitude. This will quicken, and cheer us on.

The cottage in which poor Hannah A—— lived so peacefully, is, like herself, no more; but I never pass the yard in which it stood without a lively recollection of her. The hammer and anvil that used incessantly to ring close to her aching head, are ringing still, but she is beyond their reach; and all the neighbours who used to be so kind to her, are sleeping round her in the same churchyard. How much I wish that all the poor would strive to follow her good example!

TO CORRESPONDENTS.

TO ALL CORRESPONDENTS.—Having so many queries to answer weekly, we beg you will put only a few questions at a time, otherwise our answers *must* be less full than we wish them to be.

FEEDING OFF LUCERNE (*J. B. H.*).—It depends how late you make the last cutting, and whether the land is dry, and incapable of becoming "poached,"—that is to say, its texture injured by the tread of the sheep. We should say, that it would be better policy to make the most of the cutting, and to give the lucerne time to rally again in the autumn, preparatory to a good spring crop. We certainly would prefer avoiding putting the sheep on the young plants,

IRON TRELLIS—GREENHOUSE BUILDING (*Rev. R. Blackburn*).—We should have little fear of *iron trellises*, provided they are painted once in every three years. When the paint becomes corroded, or worn away, however, they will rust, and all trees are somewhat averse to the drip from rust. In heating your *greenhouse*, be cautious of introducing stoves: we would rather depend on hot-water piping from a little "Burbidge" boiler, fixed especially for the purpose. This will be as economical in the end, and by far more certain and satisfactory. If the grounds are of a decorative character outside, you can easily sink your little furnace below the ground level, and cover it with a trap door, hinged, and around this a trellis of ornamental creepers may be thrown. In such case, a couple of four-inch pipes—a flow and a return—along the front would suffice; for your back wall will be always warm. Or, what would be better, one tank a foot wide, with a flow and return in it, and a lid moveable at pleasure. This would be of immense service to the vines during their "breaking" period, as furnishing a wholesome and moist air. As you want to combine vine and pot culture, pray keep your vines to the rafters, on the spurring system. You may then grow anything on the back wall. We do not know what you mean by "Muscatel" grapes; there are Muscadels, Moscatels, and Muscatellers—perhaps you mean Frontignan: these are too uncertain to recommend, where only three are required. We should choose the Hambro, Muscadine, and the West St. Peter's. These would produce, in succession, from July to November; and you could graft a twig, here and there, with fancy sorts. Eighteen feet long should give you five rafters, each carrying a vine. By all means, place a partition wall, if other trees grow near. Do not sink your floor—rather raise it. Your back wall may be from ten to twelve feet; your front just enough to make a convenient angle. You must get a handy mechanic, who has been used to such things. Mr. Errington thinks that the position of the border trees next the walk may be amended, by planting them about a couple of feet or so from the edge. However, by his plan the walks must be of prepared soil, for he intends the trees to take possession of them with their roots.

KEEPING A HORSE (*I. S. L.*).—Your problem is a somewhat hard one. Had the case been cows and pigs, instead of a horse, we could have better advised. We are quite aware, that a horse may be in part dieted on steamed roots, &c.; but, after all, good hay, and some other dry and more concentrated diet, is necessary. Two acres, you say: well, one acre, if good soil, may possibly produce hay enough, in conjunction with a system of mashes and steamed roots, chaff, &c.; but we cannot discern much economy in the affair. In this case, it is obvious that the roots must take the place of pasturage. Give your *Beurre Diel Pear* a rich and loamy top-dressing, three inches thick, very shortly. *B. Diel* is certainly only second rate.

FLOWER-GARDEN (*Montem*).—Mr. Beaton cannot "decline" so old an acquaintance as your plan, which was published by the late Mr. Loudon, just twenty years ago, in the 7th volume of his Gardener's Magazine, page 33, where you will find a good list of plants to fill it, in the mixed style. Nothing is easier than to plant this garden, and your own planting is very well arranged, except 9 and 5—carnations—and they are objectionable for that style, as they do not flower in the autumn: put some blue flowering plant in both of them. *Salvia chamædrioides* is

the most suitable, but *Verbena Imperatrice Josephine* will do. As you do not return till July, why not sow *Lobelia ramosa* about the tenth of May, and transplant them there till you have a stock of the Salvia? We would sow an edging of *Nemophila* round the roses in 1, about the last week in April, and the rest with *Mignonette*, which would cover the ground, and spread out after the *Nemophila* was over. *Fuchsias* are inadmissible, and moss would look very bad. Golden variegated *Hollies* are the best things for your corners; you can cut them to any shape, and keep them to any height for many years. We cannot be at the expense of returning plans.

DAPHNE ODORATA (*Ibid*).—You ought to cut it down close to the old wood after flowering, and the young tops will make cuttings.

LILIUM LANCIFOLIUM (*Ibid*).—Shake it out of the old mould immediately, and repot it in a fresh compost, in the same pot. It ought to have been potted long since, and the *white Lilies* ought to have been transplanted last October. This is a good time to plant *Hollyhocks*, but October would have been a better time for them also; the dealers supply them ready for transplanting. *Double Poppies* are annuals, and to flower them in the autumn, sow three times in May; at the beginning, middle, and end of the month. *Picotees* and *Carnations* should be planted now, or soon; you cannot retard them, but in your locality you will have *Clores* in August.

"A LARGE CIRCULAR POND in a flower-garden, which is to have a fountain in the centre, has a margin of grass four feet wide all round, then a gravel walk of six feet; now, this pond looks cheerless in winter. What can be introduced round to give it warmth in winter? The border is too narrow for Rhododendrons, and rock-work is objected to." Can any of our readers give a good suggestion?

TAN FOR HOT-BED (*Tiverton*).—Three loads, put in a two-light pit, will be sufficient for all the propagating and specimen-plant purposes you name; but the retaining of heat enough for cucumbers, will depend upon the time you wish to use it for this purpose. Mr. Fish forgot to mention *tan*, the other week, as a medium of heating, or he would have said that the drier it could be made, so as just to allow decomposition to proceed, the more mild and lasting will be its heat. There is little trouble with unhealthy steam from tan. Before using the bed for cucumbers, it would be advisable to turn it, and add a little fresh at the bottom.

ROUGH PLATE GLASS (*Ibid*).—This will have no prejudicial influence either upon your cuttings or cucumbers, but quite the reverse. You will have enough of light, and require no shading. We have seen abundance of it used, with no detriment, but have had little experience with it ourselves.

POTTING AFTER MARCH (*Ibid*).—This must be regulated by the object aimed at. We are potting almost every day in the year; but as many are a little uncertain, as well as yourself, attention will soon be given to it, in a more extended form than could well be done in this column.

AUTUMN-SOWN ANNUALS (*Cowes*).—Autumn-sown annuals need not be transplanted till after the middle of March; where they are thick, remove them in little patches, otherwise in single plants, and plant them pretty close to one another. *Lobelia ramosa* must be sown in heat, about the last week in March; and for late autumn flowering, again early in May.

NEMOPHILA INSIGIS (*F. P. S.*).—This is the best bedder of its class and colour as long as it lasts, or say five or six weeks, and *Lobelia ramosa* is the best to succeed it on the same bed, and the easiest to manage for that purpose. If the Nemophila is sown in the spring, the Lobelia, to succeed it, need not be sown till the middle of May. Please to repeat the portion of your question which has not been answered: it has escaped our memory. *Sanvitalia procumbens*, sown about the middle of April, is the best dwarf yellow plant to succeed your yellow pansy; it will go on to bloom till the frost stops it. You may sow it in the open ground, and transplant any time up to midsummer, after you remove the pansies.

PIG-STY (*R. P. H.*).—Seeds will not vegetate in the plaster you suppose. Make a border, and plant fast growing climbers to run over the sty. Your plan for a *willow hedge* will answer perfectly; such hedges, made with various plants, were common some years ago round Perth, and we saw one so planted in the Experimental Garden, Edinburgh.

SCARLET ANNUALS (*J. W.*).—There is not such an annual as you want, that we can recommend.

MANY QUESTIONS (*Flora Montague*).—Cut off the tops of your *Calceolarias*, to keep them back. We do not recollect having seen the *Mistletoe* on the ash, but it grows on the acacia. Proceed as advised last year. The blue and white *Campanula* you will have seen mentioned last week; plant them three or four inches apart, after inuring them to a cold frame. Sow *Antirrhinum* and *Penstemon* in March, and they will flower next autumn. *Celsia grandiflora*, from cuttings this spring, will bloom next autumn. The *shade of trees* will not do as a substitute, either for a bank or north wall. *A cold pit* may be above ground, or partly sunk; the name signifies that no artificial heat is applied. *Dianthus* is the family name for Pinks, Carnations, Sweet Williams, with Indian Pinks, and many others—all nice in the borders of a mixed garden. *Calceolarias* and other plants may be potted in March. The *Globe Amaranthus* is a tender annual, and will not do as a bedder. *Pelargoniums* are better the second and third year from cuttings. You certainly are not at all "unscrupulous to occupy so much room;" but you should write oftener, and not let questions accumulate; then you could be answered at greater length, and better to the purpose; a whole page might be usefully filled in explaining your two sheets of questions.

ECONOMICAL FUEL.—A Berkshire friend says: "Your correspondent, 'Taffy,' alludes to a species of fuel commonly used in South Wales, and I can, confidently, confirm his statement from the experience of my own family when residing there. We lived for some years near the coast, and found the clay balls a most excellent substitute for coals. They were worked up into the size of large cricket balls, and laid, quite in a wet state, upon the fire, and so as to allow the air to pass between them. They soon became red hot, and gave very great heat. But they were always made with a particular *strong blue* clay, dug out of the sands when the tide was out. Can 'Taffy' inform us whether *any* clay will do for this purpose? If so, it will be an important benefit to almost all your readers."

GRAFTING PASSION-FLOWERS (*Ibid*)—You may graft the Scarlet Passion-flower upon the blue one, but it is not hardy. The new bright blue variety you inquire for, is *Nemophila insignis grandiflora*.

PRIMULA CONTUSOIDES (*E. S.*).—This a deciduous perennial; that is, it loses its leaves from September to March. You need not fear but your plants will grow and flower well next spring.

SOILING COWS (*Spes*).—On your light, rich soil, no crop will answer so well as *Lucerne*. Sow thinly in drills, 18 inches apart, at the end of March. Sixteen or eighteen pounds are sufficient for an acre. *Italian Rye Grass* is frequently sown after Tares, but the sowing should not be before September. It will come in during April for mowing for your cows. Give abundance of liquid-manure after each mowing.

TUSSER (*A. M. B.*).—When we said the name is extinct, we meant that no one is alive of that name—not that his works are forgotten!

OUR VOLUMES (*S. W. W.*).—We publish them in half-yearly volumes, because many people like that size. If you prefer it, you can wait until the end of the year, and we supply covers for those who select that size.

OLD WALLS (*E. S. M.*).—If you cannot have them pointed, there is nothing durable we can recommend.

MOORE'S HAND-BOOK OF FERNS (*S. E. H.*).—The price is five shillings.

BEES (*G. E.*).—Keep your bees in the old hive, allow them to swarm, put the swarm into a new hive, and drive the old stock in the autumn. Barley-sugar does not require to be moistened before giving it to the bees.

BRITISH FERNS.—A correspondent (*M. C. R.*) requires specimens of *Lastræa rigida*, *Woodsia alpina*, *Cystopteris montana*, *Asplenium germanicum*, and *Trichomanes speciosum*. Also a *fertile* frond of *Lastrea thelypteris*, and a frond of *Polystichum angulare*. She will make any necessary remuneration.

TARRING WALLS (*A. Foster*).—We can say decidedly, that blackening the walls with gas tar, does forward grapes grown against them, especially if radiation from the walls at night is checked by the glazed frames, as you propose. *Black Barley*, we believe, is best sown in the autumn.

NAME OF PLANT (*D. A. B.*).—Your creeper is called by some *Calampelis scabra*, but we prefer the elder name, *Eccremocarpus scabra*. Sow the seeds you name in March, in pots plunged in a gentle bothed. Thanks for your criticisms. A German scholar tells us it is *Kohl-rabi*, and not *rabi*.

CHARCOAL FIRE (*T. Hughes*).—This would be decidedly injurious to your plants in a greenhouse. You must advertise for the other information you require.

OLD EGGS FOR BREEDING.—*W. J. M.* writes to us thus:—"In reply to your correspondent, 'An Original Subscriber,' who wishes to know how long eggs may be kept prior to hatching, allow me to say that I have hatched chickens from eggs three months old, which had been kept in a cool, dry room, in bran; however, I would not make sure of hatching eggs after two months old. As regards *Bantams* having a black tail and mane, with white body, I have never heard of any such breed, although I have hatched and reared hundreds of all the best varieties of Bantams; but for beauty, size, and abundance of eggs, none will beat the Gold and Silver spangled (Sir John Seabright's breed); these, if pure, are exceedingly small and beautiful."

MELILOTUS LEUCANTHA (*A Subscriber*).—Any London seedsman will obtain seed for you. The seed of *Salvia nemorosa* can be had, we think, of Mr. Stark, seedsman, Edinburgh. Cut down your old Melilotus plants.

BAKING POWDER (*B. M.*).—Can any of our readers give a receipt for making this, which is used in pastry? Your other questions next week.

RED SPIDER (*Fearful*).—Sulphur, applied by means of a hot-water plate, will not injure your plants; we prefer this to brushing it on the flues.

OUR VILLAGERS (*E. R.*).—The authoress has published no separate work, but her "My Flowers," in a volume, will be published in the spring.

NUTT'S CELERY (*A Cottager*).—You should have inquired the price before you ordered it. Eight shillings for half an ounce, is exhorbitant. We suppose he wishes to sell plants, not seed. At all events, he will not sell much at such a price. Why not return it, with a civil note, saying, you cannot afford to pay such a price?

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WEEKLY CALENDAR.

RUARY 27—MARCH 5, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
t flowers.	30.283—30.174	52—27	S.E.	—	53 a. 6	34 a. 5	5 22	26	13 2	58
appears.	30.202—30.141	52—37	E.	—	51	35	5 57	27	12 51	59
. Ivy-leaved Speedwell flowers.	30.332—30.209	53—38	S.W.	—	VI	V	6m27	28	12 40	60
VE SUNDAY.	30.206—30.088	53—43	S.W.	—	46	39	6 53	29	12 28	61
ierd's Purse flowers.	29.878—29.661	54—33	S.	0.02	44	41	sets.	●	12 15	62
VE TUESDAY.	30.343—29.909	44—20	N.	—	42	42	7a.13	1	12 2	63
BEGINS. ASH WEDNESDAY.	30.536—30.526	48—26	W.	—	40	44	8 19	2	11 49	64

s as we do, from week to week, notes upon the new plants o this country, we have continually reimpressed upon us t there are so few hardy species among them. We are ased to welcome any addition to our flowers and fruits, to be conducted to the stove or to the greenhouse; but e is it if we can introduce it to our old friends in the open extra welcome arises from the feeling, that such is every- it will be a source of interesting occupation and pleasure whereas, a stove or greenhouse plant can gladden no more tens and hundreds of possessors. We feel more interest, n we read of collectors departing for California, Japan, a, and other latitudes, the plants from whence will thrive without protection, than we do when we hear of similar pical climates, of which the plants can be cultivated here re. It was the knowledge that the utility of a plant is to its hardihood that influenced our earliest travellers in ts wisely to direct their researches to North America. The hom we noticed a short while since, and the BARTRAMS, about to notice, are examples of this early attention to ides. How few of those whose gardens are enriched by the nts first gathered by the Bartrams are even aware that men ne, and of such worth, ever existed! This is not only a ignorance, but it is an evil; for it would be a stimulus—a exciting to further efforts—if such men as Fortune, and Lobb, saw in every garden a label fixed prominently near ith its name, birth-place, and Natural Order, concluding of the discovery, and the name of the discoverer. To atter fact, in some instances, would require much research, le with ten-fold force our plea, that such facts should be orded; for it is not only national ingratitude, but blindness it, thus to have to confess that the services of such men are l are now difficult to recognise. This injustice has been ted upon the father and son, JOHN and WILLIAM BARnstance: how rarely is any one met with who knows that a the discoverer of that extraordinary example of a sensitive nus's Fly-trap (*Dionæa muscipula*); and we could mul- it extent these examples of ungrateful ignorance—ingrati- men who will be shewn are worthy of especial remembrance ng sketch, sent to us by a known correspondent (*S. P.*, art of which was published twenty years since, but much w for the first time made known.

rtram, a respectable member of the Society of Friends, was nd; he was one of the little emigrant band who accom- m Penn to America at the close of the 17th century, and county of Philadelphia. His son JOHN, to whom he gave education (for schools were scarce in his youth), was an otanist, and of a most amiable disposition: he became, as writer observes, the first naturalist the United States had, American scientific horticulturist. John was bred a farmer, in that vocation for the support of his family, but, from an s enamoured with the study of botany, and made extensive out North America, to collect trees, shrubs, and plants, ferred to, and cultivated in his garden on the Schuylkill: purchased with the view of establishing a nursery on a . Neither personal difficulties nor dangers from Indians in his travels; he explored the highest mountains and the , and, at the age of 70 years, embarked for South Carolina, ough that and the adjoining States, and Florida, ascended ohn 400 miles in a boat, and descended on the other side ed the sea. His notes on the great river, its branches and country through which he passed, were sent to the Board which they were published for the benefit of the young

der Garden, a zealous botanist, and resident at Charlestown, letters to Linnæus, dated March 15, 1755, says—"At Mr. Colden's of New York, by good fortune, I first met with John Bartram, returning from the Blue Mountains. How grateful was such a meeting to me! and how unusual in this part of the world! What congratulations and salutations passed between us! How happy should I be to pass my life with men so distinguished for genius, acuteness, and liberality, as well as by eminent botanical learning and experience!—men in whom the greatest knowledge and skill are united to a most agreeable candour." Again, in a subsequent letter to Ellis, he writes—"My worthy and kind friend, John Bartram, came from Philadelphia here, to see me, about eight days ago. He has stayed with me ever since, and will continue with me about ten days more before he returns, when he proposes to go to Cape Fear, and from thence home by land. He goes every day into the woods, and returns at night loaded with their spoils. He has brought in a shrub that I never observed, nor do either of us know what it is, and, as the flowers are not put out, I cannot have an opportunity of examining it."

John Bartram was the first person who established, in the United States, a Botanic garden, and who made a transmission of its vegetable productions to Europe a regular business; and in this he was engaged for upwards of forty years, to a great extent. The gardens of England are filled with trees and plants, the originals of which he sent to their proprietors; and Linnæus received many presents from him of curious and interesting plants, and the seeds of others, the value of all which was gratefully acknowledged by the great systematist. He was early in correspondence with Peter Collinson, of London, who was his patron and warm friend, and with many of the most eminent cultivators of botany and natural history in Britain and on the Continent, particularly Gronovius, Dalibard, Sir Hans Sloane, Catesby, Dillenius, Fothergill, George Edwards, Philip Miller, and Targioni. A mass of letters from these, and others, are still preserved, but many have been lost. At the suggestion of Dr. Hope, of Edinburgh, the Royal Society presented him with a gold medal, for the services he had rendered to the cause of natural history; and, through the interest of his friend Collinson, he was elected a member of the Royal Society of London, and of that of Stockholm. His two sons, John and WILLIAM, continued the garden,—the latter was the counterpart of his father in moral excellence, amiability, and love of natural history, and his superior in science.

He accompanied his father during his southern journey; and, between the years 1765 and 1773, again set out by himself, but sometimes accompanied by his son, at the request of Dr. Fothergill, of London, to search the Floridas, and the western parts of Carolina and Georgia, for the discovery of rare and useful productions, chiefly in the vegetable kingdom. He was engaged nearly five years in these travels, mostly among the then existing tribes of Indians, and sent his patron, from time to time, large collections of plants and seeds. These were cultivated at Upton, near Plaistow, in Essex, the residence of Dr. Fothergill, and now of Samuel Gurney, Esq., and where some of them may still be seen.

In 1775, we find he held the office of botanist to the king; and in 1791, he published an account of these journeys in an octavo volume, entitled, *Bartram's Travels*, &c. This work, though scarce, may occasionally be met with among booksellers. It is written with good taste and feeling, and abounds with useful and agreeable information, and will be found particularly interesting to the naturalist and philantrophist. The garden on the Schuylkill is at present carried on by Robert Carr, its proprietor, who married the daughter of John; he enlarged it to twelve acres, and is extensively engaged in it as a seedsman and florist. One cannot but regret, that the memoranda still in the hands of the family, or at least portions of it, should not be printed. Such men as we have spoken of are an honour to their profession; they are public benefactors—the pioneers in science; they enrich our gardens, and enlarge our sources of enjoyment.

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 48.7° and 35.1°, respectively. The greatest heat observed during the same space was 62°, and the lowest cold 13°.

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long thought that *the cultivation* of hardy wers has not been sufficiently regarded by nor even by some gardeners. It is an opinion ent, that after a hardy shrub, or herbaceous is once planted and established, it may be th more than ordinary neglect. A "chopping h the spade," is often the only *intended* friendly they receive. Then, again, how usual is it to to banish from our borders old plants, for no on than that they are old, and to replace them with others every way their inferiors, except in novelty. Thirdly, how often have we heard said, in reply to our recommendations, "Oh no! I cannot admit the Periwinkle, nor the Dropwort. Why, they are only *wild* flowers; I have seen whole hedges lined with the first in Essex, and the Dropwort is quite common on the chalky pastures of Hampshire." Now all these are gross errors. No plants repay careful culture more fully, by a grateful return of beauty and fragrance; no novelty can compensate for a deficiency in these, and none pos-

sess one or both of those qualities much more conspicuously than the Periwinkle and the Dropwort.

So strongly do we feel the truth of this, that we have applied for information to Mr. Weaver, gardener to the Warden of Winchester College; because his experience and success with our hardy border flowers is as remarkable as that of any one we know; and, in reply, he has furnished us with the following notes upon the *Spiræas*, of which the Dropwort is one:—

This being the season that so many persons will be busy, re-labelling, re-arranging, and manuring, or top dressing their flower borders, I would remark, that there are very many of our hardy border flowers, that are the better for not being disturbed at the root for many years. Others, on the contrary, require to be taken up every two or three years and separated; whilst a third section require to be taken up every year, in order to keep them within appropriate bounds. In any of these cases, if the object be to increase the number of plants, let the plant be taken entirely up, and divided into any number of suitable pieces, and let the soil be well pulverized, and fresh, rich soil, or manure, added previously to replanting. Let it also be borne in mind, that it is all the better if one species be placed where some other species has grown, for it is like a change of crop. Of plants that spread out, and require taking up for the purpose of making them less, always choose an *outside* piece to form the new plant, and never chop these kinds of plants round, as is often done, so as to leave the centre. The outer portions are always most vigorous. In these notes, I would first ask for attention to the following sorts of *Spiræas*, for they are very ornamental, hardy, border plants.

Spiræa aruncus (Goat's Beard S.) is a very beautiful plant, and a native not only of Siberia, but other parts of Europe, and even of Japan, and Virginia. It was introduced so long ago as 1633, by the elder Tradescant, and is described by Johnson, in his edition of Gerarde's Herbal. This old plant, although so handsome, is only now and then seen in gardens. It is very hardy; is readily increased by root-division; grows from two and a half, to three and a half feet high; and when planted in a suitable situation, might remain for many years. Indeed, to take up an old established plant, either for the sake of moving it to another situation, or for division, the roots are so strong and tough, a grubbing axe is almost necessary. It flowers from June to July. Strong established plants put up an abundance of large flower stems, clothed with large branching or compound leaves, and crowned with a profusion of panicled spikes of white feathery flowers. These are admired by every one, and always eagerly sought after for bouquets. Any common, rich, garden soil suits it.

S. barbata (Bearded S.) This is a little resembling the preceding, but very much less in its growth. It is a native of Nepal, introduced to this country, 1835, and often called, *S. japonica* (a name which was given it, on account of its introduction from Japan, by Dr. Van Sieboldt). It had, however, been previously discovered in Nepal, by Dr. Wallich, and by him named *S. barbata*, in allusion to a little cluster of hairs which occurs at the base of each leaf-stalk. It grows from one and a half to two feet high, and any rich soil suits it. It is readily increased by root-division, and may remain where planted from three to five years without being disturbed. Its beautiful and delicate white flowers, and its shining green leaves, render it a perfect gem, from the end of May to the end of June.

S. Filipendula (Dropwort). This is a tuberous-rooted, indigenous species, of which there are one or two varieties. The roots connected together by a thread occasioned its name. Both species and varieties are ornamental border flowers, and they may be called evergreen, as their beautiful fern-like root-leaves never die down. Well-established plants produce numerous leafless flower stems, from one and a half to two feet high, with fine bunches of white flowers. Very beautiful indeed, is the double variety, called *filipendula pleno*. I have heard of a red variety, but have never seen it. There is another variety, called *multiplex*, which is a stronger grower, with single whitish flowers. The beautiful leaves of this species should never be cut away from the plants, and once planted, it may remain in the same situation for many years, but it is readily increased by root-division.

S. ulmaria (Meadow Sweet.) This, which Martyn calls *Queen of the meadows*, is another indigenous species, and though a common plant, is pretty and sweet. There are two varieties of this species that are ornamental border flowers, namely, *ulmaria pleno*, or the double-flowered, and the other is *ulmaria variegata*, the golden-coloured markings in the leaves of which are so beautiful, as to render it a very desirable border plant, particularly if grown a little in the shade, or in a cool situation. The flowers are white, and similar to that of the species of which it is a variety. It delights in a rich garden soil, but should be taken up and divided every two or three years; the soil enriched, and a moderate sized outside piece planted again. This species grows from two to two and a half feet high.

S. lobata (Lobed-leafleted S.). This is a very beautiful plant, growing from two to two and a half feet high. It is a native of North America, and very similar to our indigenous *S. ulmaria;* but the terminal leaflet of its leaves, is very different, being larger, and 6 or 7 lobed. It produces beautiful bunchey heads of rosy-red flowers from July to August. The plant delights in a rich, holding soil, and should be taken up, and divided, and replanted, about every three to five years. The roots are sweet scented.

S. digitata (Finger-leaved S.) is another beautiful plant, is very nearly allied to the last mentioned, and requires the same treatment. Its flowers are nearly the same colour, and grow about the same height.

There is another one, called *S. palmata* (Hand leaved S.), but this I have not seen, though I believe it to be very pretty, and much like the two preceding species.

We shall publish similar notes monthly, or oftener.

WE can confidently recommend to the attention of our readers the very practical and good directions for the management of the poultry-yard, which we have commenced to-day. The signature is fictitious; therefore we will add that the directions are from the pen of a lady who teaches what she has practised with success for years.

This leads us to recommend to the notice of our readers, the new and enlarged edition of Richardson's shilling volume on *The Domestic Fowl.* The information it contains, and the beauty of the numerous illustrations, render it one of the best, as it is the cheapest, work upon the subject. It includes ornamental poultry, with their Natural History, and treatment in health and disease.

GARDENING GOSSIP.

THE *Balsam* is very constant, generally, in the character of its seed. At a meeting of the Society for the Encouragement of Floriculture, the subject of seed sowing from this beautiful plant was brought forward, and some very experienced florists advocated the use of old seed; and reference was made to some very beautiful single flowers that were shown at Chiswick a few years ago, which were grown from four and five-year-old seed; but it was objected that age had not anything to do with the doubleness, and the varied colours were deemed to have been the result of natural sporting; but these were effects of saving from mixtures. As a proof of a disposition to constancy, it was stated that from an extraordinary close flower, perfectly white, and as large nearly as a Camellia, purchased at a nursery the year before last,

forty seeds were saved and raised last year; of these, thirty-six were like the parent; one quite as double, of a rich purple; one a peach; and two semi-double mottled kinds; and thirteen seeds, saved from a straw-coloured variety, of fine habit, but not so double, the entire thirteen were like the parent, and so like each other, that nobody could make a distinction in form of any specimen. Of seeds saved from mottled red, mottled purple, mottled peach colour, the plants, in general, came nearly true as to the colours, but varied much in the quantity of colour and quantity of white. But the mottled red had nearly half a dozen distinct shades of red, from a dark brickdust to a brilliant scarlet. All these preserved their doubleness in such a remarkable degree, as to defeat the saving of seed in any quantity; the flowers on the main stem being so close and compact, as to form no pod. From the lateral branches seed was saved from the distinct varieties separately; and the next sowing will determine, if it be not determined by the first experiment, whether the balsam seed be not as good at one-year-old, as at any time, and settle how far it is constant.

The properties of the *Fuchsia* led to a very animated debate at a recent meeting of florists in the metropolis. The old story about the impossibility of ever producing one according to the rules laid down, was repeated, and flowers of various characters were introduced in illustration. One party observed, that there could not be two opinions on the beauty of the globular form; for the old *Globosa*, *Globosa major*, and several others of that form, surpassed all others in richness; and although he never expected to see a *Globosa* bud actually turn up and fold itself backwards, to form the globe, with its petals turned, there could be no doubt of the beauty of such a flower, if it could be had. He would mention several flowers that were favourites in proportion to their reflexing qualities. To begin with old ones, *Ricartoni* expanded its sepals straight out, in a true horizontal position, and showed the corolla; *Formosa elegans* went a step further, and reflexed a little; *Roseola* reflexed still more, and was, therefore, a still greater favourite; and these three were all dark. There was such a decided objection to sepals, which hugged and partly concealed the corolla, and, moreover, the outside of the sepals were always so much less brilliant than the inside, that however difficult it may be to obtain, he could not see an objection to the rules laid down. After many objections by two or three persons, it was decided, that round was richer than long buds, that the inside of the sepals was brighter than the outside, that the corolla ought to be exposed entire, and that the superiority of a variety that would reflex completely, might be easily imagined by referring to the Martagon Lily.

The *Phlox*, as most of us know, is propagated by cuttings and by parting the roots; but we saw a favourite variety, when its first blossoms showed its character, bent down and pegged along the ground, and the stem just covered with soil the whole length; last month we saw it taken up; every joint of the stem had made a root, and shot up a small branch; so that it was literally cut into more than twelve plants, independently of its full increase at the main root. We live only to learn, if we look about us a little.

We have noticed a *Penstemon*, called *Salterii*, we believe so entirely new in its character, that it is fairly a step in advance. The bloom is about the ordinary size; colour, full cream, a margin round the lip is pale rose, and there is blood-red, or a deep crimson, veiny marking in the lower part of the throat. We presume it will come out in the course of the next year; but it was the seedling plant we saw, and we presume it will be advertised. The plant was more dwarf than many of the Penstemons, not exceeding twelve inches.

Weigela Rosea has been shown, according to our observation, very tall, lanky, and bare below. We have it covered with blossoms. The earliness is from our having forced it; not a foot high, quite a foot or fifteen inches through, and a perfect specimen. The treatment, however, is as important as it is simple. We turned it out in its pot, to "rough it" all the summer; in November, we brought it into the greenhouse, and cut it down to about six or eight inches high; every stem was cut down to that length. In January it had started at every eye, and showed its bloom-buds; we then removed it into the intermediate house, a sort of cool airy stove, ranging 50° for night, and allowed to reach 60° by day, without air, and open when above that; and in this house it flowered beautifully. It was an experiment, and we recommend everybody to cut them, when they house them for the winter, to a handsomely formed skeleton; they will find it one of the most rich and beautiful of modern introductions.

We were present at a meeting, not long since, where the advantages of *a floral union* were discussed with great animation; and on the unfair advantages taken of young florists by older ones, it was urged that on entering such an order, a pledge ought to be exacted from every member that he will, in all transactions and at all exhibitions, act with honesty himself, and expose all who do not. It was, on that occasion, regretted that some persons, holding the rank of gentlemen, or of high standing as tradesmen, were not above exhibiting flowers collected by their gardeners from other person's gardens, and declaring, or making their gardeners declare, that such flowers were their own growth and property. It was recommended that such societies should be confined to the discussion of floral and horticultural subjects, and to exhibiting at periodical meetings—*First*, newly raised fruits, flowers, plants, and vegetables, for the double purpose of making them known, and collecting opinions of their merits; and, *secondly*, to exhibit well-grown, curious, rare, or handsome specimens of anything already known. A one shilling subscription from each member would pay a secretary and all immediate expenses; and the members of every other description of society could belong to this union, without drawing much upon their finances; and from a central meeting in London, societies, or rather branches, in every part of the United Kingdom, could be communicated with in a single post. A disagreeable task might be imposed on the society, if thought necessary. Any

person, be his rank what it may, actually detected in any dishonourable act, might be denounced throughout the union, by merely communicating to all the branches that Mr. A. B. is not considered eligible as a member of the union. We hope our country friends will consider this subject.—E. Y.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

BORDER-COLOURED PHARBITIS (*Pharbitis limbata*).—*Gardener's Magazine of Botany*, ii. 217.—The specific, or second, name of this very beautiful Bindweed, indicates the manner in which the two colours are arranged in the flower; *limbatus*, meaning that one colour is bordered round by a different colour—an arrangement of colours not usually met with in flowers. The flowers of this Bindweed are of a deep violet purple colour, edged round with pure white; giving them, at once, a singular, interesting, and very handsome appearance. It is an annual, a native of Java, whence it was introduced, in 1818, by the Messrs. Rollison, nurserymen at Tooting, near London. As it produces seeds freely, and only requires the same kind of culture as the old *Convolvulus major*, it will soon be as common as that annual, making a handsome addition to our half-hardy summer climbers. Plants like this, having very showy flowers, and producing their seeds abundantly, have been so carried about from one country to another by seafaring men, that it is difficult to ascertain their native country after a few years. It may yet turn out that this plant from Java had been introduced there by a Dutch captain from some Brazilian port. We have an annual Bindweed from the Brazils, called *Pharbitis Nil*, which, at first sight, might be mistaken for the subject of our biography. A third plant, or a variety of this, was discovered by the late Mr. Gardener, in Brazil, which he referred to *Pharbitis Nil;* and the characters by which the three are distinguished one from the other are so slight, that we incline to the belief they are referable to the same type. Be that as it may, the circumstance does not lessen the value of our Java plant. There is a highly finished coloured plate of *Pharbitis limbata* in the last November number of the *Gardener's Magazine of Botany*—the best and most spiritedly conducted work of all our gardening monthly periodicals. *Pharbitis* is a genus recently divided from *Ipomœa*, and the principal distinction between the two families is, that *Pharbitis* has more seeds than four in the capsule, or seed-pod, the true *Ipomœa* having only four. The name is derived from *pharbe*, colour; alluding both to the brightness of the colour, and to its variation in the same flower at different periods. Thus *Pharbitis Learii*, or *Ipomœa Learii*, the finest of the family, opens in the morning a light blue, and fades away towards the evening a pale purple.

The genus *Pharbitis* was named by J. D. Choisy, a Swiss botanist, who is the latest author who studied this order, and arranged the genera in Decandolle's "Prodromus," and in a long memoir published at Geneva in 1834. His labours among the Bindweeds have been very sharply criticised by Mr. Bentham in the *London Journal of Botany*, for May, 1845. Nevertheless, his *Pharbitis* has been acknowledged by Mr. Bentham and others in this country as valid, and also his *Exogonium*, which includes the true Mexican Jalap plant, which formerly went by the name of *Ipomœa Jalapa* and *I. Purga*.

The source of the Jalap drug was a mystery for many years, and is so to this day by the great mass of plant collectors. We cannot, therefore, employ the space allotted to this biography better than by giving that of the Jalap plant, *Exogonium Purga*, of Choisy, or the *Ipomœa Purga*, and *Convolvulus Jalapa* of other days. *Exogonium* is taken from *exo*, outside, and *gonew*, to beget; alluding to the stamens being exserted, as botanists term it, that is, growing out beyond the limb of the flowers; a Bindweed, with exserted stamens, must, therefore, be referred in future to the genus *Exogonium*. The true Jalap plant was known to Philip Miller, "the King of Gardeners," from seedlings of it which he reared in the apothecary's garden at Chelsea; but he did not flower it, probably because he mistook it for a stove plant, which it is not. He says, "from a drawing of the plant made by a *Spaniard*, in the country where it grows naturally, who gave it to *Dr. Houstoun*, and is now in my possession, the flowers are shaped like those of the common Great Bindweed, each footstalk supporting one flower; but as it is only a pencil drawing, so the colour is not expressed, therefore I can give no farther account of it." Having seen this plant in flower in the open air in England, we can make up for Miller's deficiency, by saying the colour is a light crimson; and as the *Purga* requires about the same kind of treatment as the Dahlia from the same country, we recommend it as a fine thing; and we would plant out the roots on a south warm border, that the slender stems might have the advantage of a south wall. In the neighbourhood of Edinburgh, it has been flowered in a plant stove lately, but that was an unnatural way of treating it. The true Jalap plant did not escape the great Humboldt. He says (*New Spain*, vol. iii.), "The true *Purga de Xalapa* delights only in a temperate climate, or rather an almost cold one, in shaded vallies and on the slope of mountains." We may, therefore, assert confidently that the Jalap plant would repay its cultivation in Australia, New Zealand, the Cape, Port Natal, and other colonies; a fact of great importance to practitioners in these settlements, were it only to avoid the ill effects of the adulterations of the officinal drug, a common practice, the roots of the white Bryony, and other less dangerous substances being mixed with it. The Jalap roots are not much

larger than a goose's egg, and if sent out of Europe in October or November, they would travel from country to country without taking any harm for the next five or six months. A friend of ours, with whom we had seen the plant in flower, said, "These very roots were detained at Vera Cruz, under the French blockade, nearly two years, but began to exhibit signs of vitality in a short time after they were placed in a hot-bed, and here they are in flower the same season." The word Jalap is a corruption of *Xalapa*, which the Mexicans pronounce Jalapa, the province of Mexico, where it is a native of, or, at least, whence it has long been sent to Vera Cruz for exportation.

Dr. Schiede procured it from a different locality, on the eastern declivity of the Mexican Andes, at an elevation of 6000 feet. The reason why the true plant, which supplied the Jalap of commerce, remained until a few years back without being accurately determined, was this: Michaux, a French botanist, who travelled in America, named an *Ipomœa*, with a very large root, *Macrorhiza*, which grows near Vera Cruz and other parts of the country, as well as in the Floridas; and the drug being exported from Vera Cruz, naturalists rested satisfied that the source of the Jalap was this large rooted *Ipomœa*, and hence the idle stories about Jalap roots weighing 50 lb or 60 lb.

Pharbitis limbata belongs to the Natural Order *Bindweeds* (Convolvulaceæ), and to 5-*Pentandria* 1-*Monogynia* of the Linnæan system. It is a twining annual; *stem* clothed with bent-back hairs; *leaves* heart-shaped, but with three pointed lobes, and hairy; *flower-stalks* single, one-flowered, and half the length of the leaf-stalks; *calyx sepals* four, long, narrow, bristly at the base, and hairy at the top. B. J.

THE FRUIT-GARDEN.

"DELAYS ARE DANGEROUS."—Although much has to be advised shortly, both as to in-door and out-door fruits, yet we feel inclined to stir up the memory of our readers as to some important matters concerning hardy fruits. The weather has been so unusually mild for several weeks, that the blossom-bud is now, in what we must term, a most alarming state, for the pears and gooseberries here (Cheshire), are half developed in some cases; and, indeed, the peaches, &c., too much advanced. We much fear, therefore, a great destruction; for who can expect the whole spring to run on in so unusual a way.

Let every one, who can command evergreen boughs, whether of spruce, or other firs, holly, laurel, privet, &c., immediately stick them, as we have done during the last three days, through all the best gooseberries, pears, and other forward things; for if they do no good, they cannot possibly do harm. Ours are simply laid over the tops of the fruit-trees, and if any happen to become displaced by a storm, why a man in a couple of hours readjusts them.

Pears, here, being mostly trained horizontally, or, as low bushes, are covered with great facility, and we shall make a point of taking the boughs off for three or four days in about three weeks time—seizing a period free from frost for the operation, with the barometer steadily in our favour.

ROOT-PRUNING.—Those who have such operations still to perform, must see to their completion without a moment's delay; and, remember, that the operation should scarcely be so severe now, as when performed in November, for the roots, doubtless, not only commence to cicatrice during winter, but either produce new fibres, or prepare the very germs of them.

TOP-DRESSING.—Whenever this is needed, let it be applied forthwith. As we never dig over the surface of our fruit borders, we apply a thin dressing *annually* (the moment the bushes are pruned), to all gooseberries, raspberries, black currants, &c. One barrowful, generally, suffices for two or three trees. This is spread in a circle round the bush, and then a little soil strewed over to prevent loss by drying. Other fruits, too, require attention at times, in this way; all apples, pears, plums, cherries, &c., which appear exhausted by heavy cropping, will be benefited. It is quite interesting, at this period, to observe the early action of the black currant roots; where top-dressings are annually applied, they will be found in a most active state now, close beneath the surface.

INSECTS.—We must here allude more especially to the apple blight, and the *Apricot scale*. By the latter, we mean the scale of the Narrow-winged Red-bar Moth, the *Pœdisca angustiorana*, an account of which will be found at page 81, of vol. iii. The former, termed the *American blight*, may, by persevering in the use of spirits of turpentine, be totally eradicated The scale is a most serious pest to the apricot, and should be hunted out now, on the old stems of the apricots, where the eggs will be found at this period just beginning to enlarge, preparatory to their hatching into caterpillars. They are in patches, and appear like oval daubs of paste. These we assiduously destroy, for it will be remembered that such produce the caterpillars, that are almost sure to make their appearance with the young leaf, which they so mutilate and roll up, as seriously to damage both the present and the prospective crop, and also paralyze the system of the tree. There can be little doubt that the usual soft soap, lime, and sulphur dressing, as applied to peaches, would destroy them, if applied betimes; but this we have never proved.

We recommend those who are desirous of having healthy crops of that most useful fruit, *the black currant*, to water or syringe their trees over, forthwith, with the strongest soap-suds of the laundry. We would give them a second application, if possible, before the buds unfold. This will prove, in a great degree, antagonistic to those ruinous aphides, which annually do so much mischief; and will, moreover, be almost equal to a manuring. Indeed, the old plan, as practised by the celebrated Speechly, in his day, of pouring soap-suds constantly over the walls containing particular fruits, during the rest season, is well worth introducing to modern practice. We should always do so, but that over amount of labour will not bear us out, unless we have every confidence in its utility.

PEACHES AND NECTARINES.—These of course will be all pruned and trained by the time this advice reaches our readers. Let us advise that the application of the sulphur paint be not forgotten. Beat up three ounces of soft soap with each gallon of tepid water; add four handsful of flower of sulphur, and, if necessary, add some soot to subdue the tone of colouring imparted, which, without the latter, is a lively lemon colour. We generally add some thick clay water, making the whole the consistence of ordinary paint. Let this be applied by a brush to every space between the shoots, and if a little should perchance touch the shoots, it will not harm them.

GRAFTING.—This will probably have to be performed earlier this spring, and we advise those who have pear-trees of some size, which do not give satisfaction, to insert as many grafts as they can find time for, of truly good kinds adapted to the locality. Wherever such "take," the spray of the original tree may be pruned away in the following autumn, and the shoots from the grafts tied down in their places, or otherwise trained. Ample directions for grafting will be found at page 229 of the volume for 1848-9.

Plums, cherries, apples, &c., may be served in a similar way, and were this plan more frequently practised, there would seldom be occasion to totally destroy established trees.

A NURSERY.—Our readers must not feel alarmed at such a heading; we do not wish them to enter into business in this way, but merely to hint, that where an amateur has room, and desire for severe economy, and

feels an interest in the rearing of his own fruits, he will do well to set apart a plot of ground for this purpose. Unless the ground is pretty good, however, it is scarcely worth his while, as stunted trees or plants are seldom profitable. He can, of course, combine the useful and the sweet—the things belonging to the ornamental, with those of the culinary or fruit department. For the latter he will require to procure a lot of stocks, and they should be planted immediately. He will need quinces for dwarf or trellised pears; the ordinary pear stock for orchard pears; the Paradise for apples under a dwarfing system; and the ordinary crab for common standard apples. For weak growing plums, the Brussels stock, and for the coarse growing kinds, the Muscle stock; the latter he may also use for peaches. For the apricot, our nurserymen use, we believe, the "commoner" stock, which is of a thorny character.

Thus equipped, and the stocks planted out two feet apart between rows, and fifteen inches between the plants, he will be able to bud on them this summer, or graft the following spring, if planted carefully, and the soil is good. It must be observed, however, that as to the quince stock, it is little use planting this in dry or sandy soils. The quince loves a permanency of moisture; but when we say this, we do not mean that the soil must be wet, only that it must not be liable to sudden drought. Of course this is not a question of manures, but of the mechanical texture of the soil. The subject has been repeatedly handled in these pages; but we may repeat, that the clayey principle should form an important part of all soils or composts intended for the quince. We have known the quince-trees in the neighbourhood of London thrive exceedingly on a coarse gravelly loam, or dirty clay, of about a foot in depth, resting on a watery and dirty white sand. Soils of an alluvial character, such as the sediments of ditches on clay soils, will be found to suit the quince well, if plenty of ordinary sand of a fine character be mixed with it. If the clayey principle is present in sufficient quantity, the dryer and sounder the bottom for this the better. It must here be observed, that the latter niceties refer to our fancy pears; that is to say, to the quince, after being worked with them, and planted out finally.

RETARDING BLOSSOMING.—As a little sound advice to the readers of THE COTTAGE GARDENER, who take an interest in fruit culture, we beg to suggest a due attention to the protection of the blossoms of their *pet fruits* already established; and this, as we have before remarked, consists not only in warding off frosts, but in endeavouring, by all fair means, to retard the opening of the blossoms. This we have repeatedly proved to be sound practise in proper hands; and, if we mistake not, we were the first to urge it strongly, in the pages of THE COTTAGE GARDENER.

We are glad now to see the subject taken up, and its importance recognised, by other gardening periodicals; and indeed the whole thing is such a common-sense sort of an affair, that it needs but pointing out, with its concomitant arguments, as a principle, together with the collateral proofs of practice, to be at once enlisted into modern practice. Still, here, as in everything else, some caution is necessary. If any one should suffer their covering, of whatever kind, to remain constantly on until the blossoms become what we gardeners term "drawn," we most earnestly beg they will not impute the failure which will in all probability follow to our advice.

When once the blossom buds commence expanding, we little fear the roughest storm during the day, avoiding frost, and, generally speaking, drenching cold rains or sleet, and for this purpose, where canvas or bunting is used, it becomes expedient to lower it every evening, taking care to uncover next day if possible.

R. ERRINGTON.

THE FLOWER-GARDEN.

TRANSPLANTING.—Before we plant the large tree referred to in my last letter, let me run over the heads of the instructions given in it. A large shrub, or tree, is in the way of something, and it must be removed, but no one is at hand who understands the process of transplanting, therefore, to insure success, the roots are prepared—the spring before—not by cutting round the surface roots as is generally practised, but by cutting a passage under the tree to get at the top roots, which are cut, and the passage is then filled up. At the proper time for removal, the passage is opened again, two wheeling planks laid down, and a truck on two rollers is passed in over the planks and fixed so that the roof of the passage rests on the truck; the plant is then disengaged in the usual way, and now rests with a large ball on the truck, just as if nothing had been done to it; horses are now hooked to the truck, which, being on the planks, runs easily out of the hollow, and when on the surface may be carried in any direction, like a garden roller. The last account left us in the middle of the pit for transplanting; the one end of the truck down in the pit, and the other end on planks, or on the edge of the pit without the short planks. If we consider it—this is a very odd way to see a tree in—it is placed on a truck which is now standing on a steep incline, like the roof a house. How can it stand on the truck? It does not stand on it, only rests against it; as soon as the one end of the truck was brought to the centre of the pit, the ball slipped down to that end, or was pushed down by raising the back end of the truck; the horses are now unhooked from that end, and one of them is hooked to the other end of the truck, to pull it backwards, which must be done very gently, and as the truck slips away from under the ball, the tree or bush comes to the perpendicular, without the least violence to any part of it. If it should happen that the ball is not got to the centre of the pit, but is more to one side, and, therefore, the roots cannot find room on that side, it is better to widen that part to let in the roots, than to endeavour to shift the ball to the centre of the pit.

Now, I affirm with confidence, after seven years experience of this system, that it is the simplest, the safest, and best of all the ways that have hitherto been hit on for removing, or preparing for removal, large trees or shrubs—tunneling under a tree, or half way under one, is the only way to get at, and cut short off—roots which have gone down into the bad bottom-soil; or when we wish to make the best of the root-pruning system, without reference to transplanting. When the plant to be removed is of a size that four men can carry it away on a hand-barrow, the barrow, owing to the legs, cannot well be got under the centre like the truck, in that case I would use the mason's hand-barrow, which is without legs, or what would be better still, I would lay down two handspikes, two feet or more apart, and nail boards across them in the middle, and make my carrying barrow on the spot to suit the size of the ball to be removed. A planting truck, sufficiently strong to carry five or six tons weight, and running upon two rollers, is nearly as easy to make as the simple hand-barrow, with handspike handles as above; if one were near a turner or wheelwright, who could make the rollers, any one who can drive a hand-saw and a hammer, could make the body of the truck in less than an hour. First of all get three pieces of oak quartering, as long as the truck, or say from three to five feet, according to the balls it is intended to carry; our's is four feet six inches long, and three feet nine inches wide; the three pieces to be three inches thick one way, and two or two and a half inches the other way; lay them down at equal distances from each other, and at the width of the truck; then nail strong boards an inch thick across the three pieces, till

you cover them, except two or three inches at each end, and your truck is finished, except the rollers; the upper surface of it being just four inches from the ground (three inches the ribs, and one inch the boards laid across); the ends of the middle rib need not project like the side ones; saw them off. The rollers should be nine or ten inches in diameter, and should be placed a foot from each end of the truck, and when the whole is finished, the top of the truck will not be quite a foot from the ground; so that it can be pushed under a tree, or stone, or anything else you wish to carry on it, by making a passage under it a foot deep; and it is a very handy thing about a place for many things. If it had moveable sides, you might carry a horse-load of soil, or any thing with it, across the lawn to flower-beds, if the horse was in boots. But we have not got the rollers fixed yet. They are made the exact width of the truck, and say, ten inches in diameter; four inches at each end are then reduced to the diameter of eight inches, and a space of four inches is then reduced in the centre of each roller, and nearly five inches in depth; this space is to allow room for the centre rib to fall into, and to allow of the rollers working freely without the middle rib touching them. The two outside ribs are scolloped out a little over the reduced ends of the rollers, so as to allow them to bed in, as the carpenters say; this scollop is in form of an arch, and no more than an inch deep at the crown of the arch. When the truck is in motion, the reduced ends of the rollers turn round in these openings in the side ribs—wood working against wood: and, by keeping the wood axles greased, they work as free as if they were polished iron, and they seem to last much longer than iron axles would do under the same work. By looking at the truck from either end, when it is in motion, you would think that each roller was in two pieces, owing to the space cut out of the middle of it. The way the rollers are fastened to the ribs is very simple and strong; a piece of iron, about the width and thickness of the rim of a carriage-wheel, bowed near the middle to clasp round the end of the roller, is screwed, behind and before the roller, into the rib-piece,—not unlike the way some barrow-wheels are fastened; the outer end of this iron is continued out to the end of the rib-piece, and then formed into a ring, to hook the traces or ropes to for drawing it along, and to make it all the stronger. These ends are wound round with hoop-iron, just behind the rings. From all this, I think, the merest hedge-carpenter could put up a planting truck, if he had a lathe to turn the rollers, and pieces of rough iron hoop, to fasten them.

Harry Moore is our planter-in-chief here, among forest trees; he has been at it, every winter, these twenty years and more; first, under Mr. Lovett, the old gardener, but, for a long time on his own account, and is not too old to be taught any new improvement in the way of planting. I would back him to remove a full-grown tree against any planter I ever heard of; and he says, this truck, and this way of planting, is by far the best and easiest, for men, and horses, trees, and all. The plan of tunneling under large trees belongs to him; he has planted that way for the last six or seven years, but he owns he took the idea from seeing roots prepared that way in the garden where he works during the summer. The truck was made for him after he failed, in one or two instances, to carry very large trees on a ledge with five horses. He has a set of chains, by which he can fasten a tree to the four corners of the truck before he starts; and what with the weight of the ball, and the help of these chains, his trees go across the park just as they stood, and are never off the perpendicular, except at the moment of planting. There are no heavy lifts, or straining, at this kind of planting, and the men prefer the work to planting small trees from the nurseries; and when the wind is high, or the tree top-heavy, he uses two guide ropes, fastened near the top, one on each side, to steady the tree as they go along, a couple of his men holding each rope. To finish, as I began, these letters on planting, let me again urge on those who have not had practice in this kind of work, not to attempt to remove any tree that is above ten years planted, till next autumn, but to have the roots prepared forthwith.

From planting large trees and truck-making, let me free, for one short paragraph, to hunt up a beautiful Spanish bulb, one of the prettiest of the season, easier to find than the Crocuses of Spain, and, like them, everybody's flower, and as pretty as any crocus can be, and not unlike them in colour; it was described by Clusius more than two hundred years since, but, strange to say, it has never yet been introduced into England. If we can re-introduce Yellow Geraniums from the south of Africa, surely we can get over a beautiful bulb from Spain, if we go the right way about it. I was looking over some old memorandums the other night, to get ready for our new Dictionary (about which it is very gratifying to us all to hear such favourable reports), and there I met with the name of this Spanish bulb, and a pretty sounding name it is—*Lapiedra Placiana;* the most conspicuous bulb belonging to the Spanish Flora. It has leaves like the Yellow Amaryllis, which blossoms with us in the autumn—the *Oporanthus* of botanists—and a white band down the middle of each, like that in the leaves of *Hippeastrum striatifolium.* The flower-stalks support from six to eight beautiful white starry blossoms, something in the way of a white crocus flower, or a *Hypoxis.* A variegated bulb with such flowers would be a great acquisition to us. Any one looking for it might know it at first sight, without being in flower—the variegated leaf is enough. If I were a nurseryman, I would rather have a thousand bulbs of Lapiedra to dispose of than a large bundle of Spanish Bonds! It grows among stones, and in the clefts of rocks, and Lagasca, a professor of botany in Madrid, says it grows near the Church of San Fuen, near Agesiras, and near Malaga, also on the stony heights above Valencia, so that it may easily be obtained.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

WHEN SHOULD PLANTS BE REPOTTED?—The comprehension of a principle on which an operation is based, is of great importance, both as respects successful result, and as conveying to the operator a degree of intellectual pleasure. Practice, then, instead of being a matter of mystery, and hap-hazard routine, becomes allied to, and identified with, scientific induction. From the correspondence we are permitted to see, our friends, young in gardening, are apt to fall into two opposite errors; one party requiring all, the very simplest, operations to be detailed respecting the culture of their pet plant, and troubling themselves little about the principle; whilst another class require, above all things, the rationale of operation, to the comparative neglect of those minutiæ of detail, attention to which constitutes no mean element of success. In the case of those individuals far better acquainted with general science than it is possible for us to be, this second error is apt to arise from a difference between a science bearing upon unorganized material, and a similar science having reference to organized existences,—these being divided into numerous groups and families, possessing many general analogies, but greatly varied in character, and requiring, for their full development, separate features of management—features which cannot be discovered by theoretical principles, unless these are associated with

extended observation, habitual attention to trifles, and many practical experiments. Far, therefore, from undervaluing first principles, we would yet suggest, that they alone will not constitute a royal road to success in gardening. Here, as well as in most cases, excellence is the result of right-directed labour, and unwearied industry.

These remarks will apply to several correspondents, whose cases, as opportunity offers, I shall gladly endeavour to meet. The heading of our article to-day, is owing to the following question—"Are the instructions (where no top or bottom-heat is applied) to shift plants, such as Geraniums, Verbenas, Calceolarias, Cinerarias, &c., &c., in March, and even after that time, to be followed?" Our friend tells us that he has hitherto done so without comprehending the principle or physiology of the operation; that he was generally rewarded with leaves, and with but little bloom, and thinks that some simple explanation might be given as to whether plants that had filled their pots with roots were to be shifted or not.

Now, here it will be obvious, that no definite instruction can be given to suit every case. The manner in which a plant blooms, the period at which that bloom is wanted, the mode in which it is desirable to secure it, whether from small plants for a window, or large massive specimens for a greenhouse, must all be taken into consideration. along with the question of *time*, as, if commencing with a young plant, the sooner we expect a return in the shape of bloom, the smaller the specimen we must be satisfied with. And yet the principle on which we would base operations, frequently seemingly different, is one and identical, namely, that in vegetation, continued luxuriance in growth is opposed to fecundity in flowers and fruit; in other words, whatever tends to the free production of leaves and leaf-buds, militates against the production of flower-buds. You want a simple illustration; walk into some old orchard in the spring, and observe which is the apple-tree most densely covered with bloom. It is not one that is young and vigorous, but some old weather-beaten centenarian, stunted and flat-headed, scarcely able to send out a green leaf amidst its masses of rosy flowers. Every plant is a separate, independent existence,—yes, but it is more; that existence is composed of an assemblage of individualities, in the shape of leaf-buds, each of which, when separated from its neighbours, is capable of becoming an existence similar, in every respect, to its parent. Whenever, from want of space, arrival at maturity, from natural or artificial causes, there is an obstruction to the production of leaf-buds, nature immediately puts forth an effort, in another direction, to perpetuate the race, by means of flower-buds followed by seeds. The same principle is applicable in the animal as well as in the vegetable world. Fecundity is encouraged by a deficiency of fat, not by the plethoric state. Stock farmers understand this well. The same principle guided Mr. Errington to the valuable discovery of root-pruning fruit-trees. It was beautiful to see pear-trees rivalling the trees of the forest in luxuriance, and producing beautiful timber; but, somehow, our teeth could not masticate the wood, though they would have luxuriated in grinding a melting pear; only, under the old system, we could hardly expect to get them plentifully from trees of our own planting, until our hairs were telling a certain tale. By shallow borders, by poor soil, by curbing the roots, by cutting them when too great luxuriance appeared, the sun and air had less to do in maturing and elaborating the juices, and thus we were presented with *fruit* instead of *shoots*.

A similar principle, under a different mode of development, must regulate our treatment of flowering plants. We want the free blooming of the old apple-tree, without its decrepitude and appearance of decay. We want as much luxuriance as will convey the idea of perfect health, and yet will not interfere with the size and number of the blossoms. To effect this, there will be no necessity, except in extreme cases of luxuriance, for the pruning-knife at the roots; all can be accomplished by soil poor or rich, water clear, or strong with manure, and a complete understanding of the object of potting, and the peculiar habits of the plant.

The peculiarity of the plants to be treated, must form the groundwork of the application of the principle—*luxuriance is opposed to fertility*. Hence, as a consequence of that principle, plants never flower so well as when their pots or tubs are crammed with roots. Whenever the roots reach the sides of the pot, and are kept safe there, an obstruction to growth is given; and, as they cross and recross each other, contending lustily for an outlet—provided a due exposure to sun and air is afforded—a concentrating and accumulating process, instead of an expanding one, commences, resulting in the development of fruit or flower-buds. Other things, therefore, being equal, the finest blooms are often produced from comparatively small pots; and size for size, and weight for weight, more in a proportional ratio, is obtained from a small pot, well attended to, than from a larger one. Of course, the brilliancy of a fine, large, well-flowered specimen, is not to be expected, but the small one may be as perfect in its way.

Our friends (for it is for numbers, and not for one, we discuss this question) will be pretty well able to discover whether they should repot their plants or not. If the pots are full of roots, and they want early bloom, they must not attempt to repot them. If flower-buds are formed, you would, in many cases, render them weak, or cause them to go blind (a technical expression for imperfect flowers) by the check given them in the operation, and when that check was over, and luxuriant growth had commenced, you would have to wait until the same process of filling the pots with roots was repeated before you could expect a fine head of bloom. The object you aim at, and the capabilities of the plant, must constitute your basis of operation.

Let us, if possible, illustrate this still farther. Here is a plant with large leaves, that throws up a flower-stem from the base of these leaves, where they are united into a something between a short stem and a bulb—a *Bletia*, for instance. The more luxuriant the leaves this year, if well exposed to light, so as to lodge highly elaborated matter, the better will it bloom the next. Good soil and manure-water is, therefore, given in summer, and all necessary potting attended to, and the plant is rested a little during the winter, and then when the stimulus of heat and moisture is applied in the spring, the flower-stems rise strong and vigorous. Shift that same plant into a larger pot in spring, and ten to one, though the leaves would get more luxuriant, the flower-stems would be weak and puny. Again, there is the *Epacris*: its mode of flowering resembles the Peach; when cut down after flowering, the fresh shoots made are those that will bloom next year. If shifting is necessary, you may give it at once or several times during the summer, according to your fancy, provided the pots are getting full of roots before winter, and more full before they flower in spring. Shifting just before blooming is out of the question.

Again, here is a tribe of plants that produce splendid umbels or racemes of flowers upon strong sturdy shoots of the current year's growth; witness the *Clerodendrum*. Here, on starting, you may pot into the blooming pot at once, or you may shift and reshift, provided you obtain a luxuriant, stubby growth, and have the roots *kissing* the side of the pot by the time the flower-buds appear. Did you shift when the flower-bud was *forming*, you would not only weaken it, but would throw a too great strength into the leaves. Then, as respects the plants

mentioned by our correspondent, the same principles apply. The *Verbena*, being a continuous bloomer, would feel the check of shifting the least; and, therefore, it could be potted at almost any time where greater luxuriance was required, as the hurting a little of the present buds and blossoms would be compensated by a greater number of fresh ones; for as it grows it will bloom. But here, as elsewhere, the bloom will be the finest and most abundant, when, from obstruction, the accumulative process exceeds the progressive.

Again, the strength of the flower-stems, in the case of a *Cineraria*, and in a *Calceolaria*, especially a herbaceous one, consist in the store of matter lodged in the axis of the plant; and therefore we encourage luxuriance of growth, and expose the foliage full to the light, and we shift and reshift, preventing the roots ever matting round the side of the pot, until we deem that we have luxuriance enough to form and carry a large head of bloom; and continuing the process, the pot is soon filled with roots, and the bloom-stalks shortly appear. If, when the flower-buds were forming, or duly formed, we repotted the plants, we should expect weakly bloom, and large leaves.

And, lastly, as respects *Geraniums*—for we must close. Continuous blooming ones, like Verbenas, would not suffer so much from continuous shifting and potting without an object. But all those Pelergoniums that bloom only for a period would be sure to be injured by indiscriminate shifting and potting. For instance, here are a number of strong plants cut down last August, potted and repotted again in December; though no manure-water has been given, the leaves are large and green, and the flat appearance of the point of the shoots is telling that the flower-buds are not far off; repot these now, and the luxuriance would be increased, and the flower-buds weakened. *There* is a lot of smaller plants, potted in October; the strongest shoots were all stopped a few weeks ago, alike to keep them back and make the plants bushy. They are now breaking again, and will be repotted directly, and will come in in succession to the first. Other younger plants stopped and repotted, and very likely stopped and repotted again, will succeed these, to be again succeeded by others; the same thing being to secure moderately strong shoots after stopping and potting. never allowing the roots to be densely matted, until you wish the plant to bloom, and never to pot a plant so supplied with roots, especially if there is the slightest appearance of bloom. By such treatment, Pelargoniums may be had in bloom all the season. If a plant is not so large as you wish it, if it shows bloom sooner than you want it, shorten the shoots, wait until the buds in the axils of the leaves are *shooting*, then repot, and encourage the fresh shoots; and when the pot is full of roots, you may expect that, before long, other circumstances being right, flower-buds will soon make their appearance. In using light soil with a little manure and leaf-mould for geraniums, no manure water should be given until the flower-buds appear In the case of Calceolarias, it may be given at times before, but more liberally after, the bloom-stalks present themselves. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

THERE are a great number of stove plants which require, or, at least, are much better grown if cultivated in *a pit heated with dung*, and especially during the early part of the year. As glass is so cheap now, no gardener of any pretensions ought, or need, to be without such an useful appendage. There is here, at Pine Apple Place, three such pits, of three lights each, which are so excellent, and answer the purpose so well, that, for the benefit of our readers who may now be desirous to improve their plant departments, we shall endeavour to describe them.

The situation they are placed in is on the south side of a wall, and pretty close to it. They face the east, which is considered an advantage, because, at mid-day, the sun shines across the glass, and, consequently, the plants do not require so much shading, and may be exposed to the full light during the whole of the afternoon.

To support the frames, four walls, a brick in breadth, are run up three feet high, one at each end, and two equadistant between them. These walls are the exact size of the three light wooden boxes set upon them. When the walls are built the proper height, and quite level, thick slates are laid from wall to wall, meeting in the centre of the two inner walls, and reaching to the outer edge of the two outer walls. When these are finished, an ordinary three-light box is fitted upon the slates or flags, and the spaces underneath are filled with well-fermented stable-litter, packed in very tight, and a lining, eighteen inches wide, placed against it, a little higher than the walls. When all the three pits, or frames are at work, the spaces between each are filled with stable-dung, also in a state of fermentation. This keeps the heat in under the frames for a very long time. As soon as the heat is up, the slates are covered with coal-ashes, two or three inches thick, and the plants can then immediately be placed in, as there is no fear of burning the roots; but which there would be without the intervention of the slates. Our more learned gardening friends will immediately perceive the great advantage, and the many uses, to which such a structure may be applied. In the first place, the moist dung-heat, deprived of the power of burning the roots or scalding the leaves, is an excellent stimulant to many hard-wooded stove plants, which, in a common stove, are difficult to cause to grow with that luxuriance which they do in such a frame as we have described. In the next place, a frame of this kind is a most successful situation in which to strike various kinds of cuttings; and, lastly, it is a very efficient nursing frame for seedlings of stove plants, and also is very serviceable for holding such grafted stove plants as require propagating by that means. Even Cucumber and Melon plants may be raised better, and more quickly, and more safely in such a place, than by the old method of a common dung bed, with the frame set upon the dung without any protecting medium. Another advantage is, that the heat can be renewed with greater safety, and more effectually. All that is needed being to have a sufficient heap of dung in a good fermented condition, then to remove all the spent litter, and place the fresh in the cavities under the frames. This will renew the heat completely.

The kinds of stove plants that are greatly benefited by being placed in such moist stimulating heat are, *Aphelandra aurantiaca; Cyrtoxeras reflexus; Gardenias*, several species; *Ixoras*, the whole genus (no species of plants are more benefited by this treatment than this fine family); *Jatropha panduræfolia; Lemonia*, both species; *Napoleona imperialis; Pavetta borbonia; Portlandia grandiflora; Quassia amara; Jasminum sambac flore pleno*. This last-named plant, though half a climber, may be trained so as to allow its being placed in this moist heat chiefly for the purpose of destroying the red spider, to which it is frightfully subject. Such a situation, partly for the same reason, is very suitable for *Gardenia florida pleno, G. Fortuniana*, and *G. radicans*. All these are plants much valued, on account of their pure white, double, and powerfully, yet agreeably, perfumed flowers, and in a moist heat, like that in the pit described, the plants grow freely, are of a good colour, and quite free from the red spider.

After all that has been written about other means, the

heat from fermented dung, when moderate and well sweetened, is more grateful and stimulating to all exotic plants, when in a young state, than the heat obtained from either tanners' bark, tree leaves, or hot-water tanks, though we are quite willing to grant it is not so sightly or agreeable to human senses.

In such a pit, so heated, stove shrubs (that in consequence of having become straggling and unsightly, it is necessary to cut down, and to reduce their roots and pot room) will break out fresh shoots, and more quickly make handsome, bushy, freely-flowering plants than they would do subject to the ordinary treatment in the plant stove.

Cuttings.—All the soft-wooded stove plants will strike in such a situation without the aid of bell-glasses—a consideration in many cases of some weight. We mean such plants as *Achimenes*, *Æschynanthus*, *Agalmyla*, *Balsamina*, *Begonias*, *Cyrtoceras*, *Gesneras*, *Gloxinias*, *Hoyas*, *Siphocampylus*, and such like. Now, if cuttings of these kind of plants be put in pots filled with the proper compost, having an inch of silver sand upon it, and are placed in a frame thus heated, and due attention be paid to shading, giving air to let off the steam, with a very moderate application of water, almost every cutting will grow, and that more quickly than if placed even under glasses in a bark-bed, in an ordinary stove, and also with a great saving of time and labour. Hard-wooded stove plants, such as *Ixoras*, for instance, will also strike root more quickly in a pit heated as above described, though they will require a bell-glass and shade, &c.

Such a frame, so heated, will be found useful in the greatest degree for striking cuttings of *Calceolarias*, *Chrysanthemums*, *Dahlias*, *Fuchsias*, *Hollyhocks*, *Petunias*, *Verbenas*, and a host of other bedding-out soft-wooded plants. All these would strike roots in an almost incredibly short space of time, and without bell-glasses. The only precautions necessary, being to remove them out of the moist heat as soon as they show symptoms of growing too fast, and weakly; and effectually shading them from sunshine, or even light, for two or three days. Caution should also be taken that the steam should escape (if too powerful), both by night and by day. Let the lights be tilted two or three inches high during the day, in mild weather, and with a piece of wood or slate the thickness of a penny piece during the night. The opening, however, should be covered with a thin mat, to prevent the cold wind from blowing upon the tender, growing cuttings.

For *grafted plants*, these frames are an admirable nursery. As for *Combretum purpureum*, and *Ipomea Horsfalliæ;* also, with a less degree of heat, numbers of greenhouse plants usually increased by grafting, would find this frame a comfortable nursery, which would soon cause the strange scion to unite in such close bonds, or, like matrimony, would never be dissolved till death. The following plants we allude to—*Chinese Azaleas*, *Camellias*, *Eriostemons*, and *Pimeleas*, several varieties and species of which require grafting upon free-growing stocks, to cause them to grow stronger, and live longer than they would if on their own roots.

In one of these pits, some two or three years ago, we grew a considerable number of seedlings of that beautiful tribe, the *Gloxinias*, and excellently well they flourished, so much so, that, with very few exceptions, they all flowered the same year; and amongst them we raised that splendid variety, *Gloxinia grandis*, which for perfect form, and brilliant colouring, stands far above any other. This points out another great service rendered by a frame so heated.

We are aware that this is no new invention; but we are also aware that the invention is little known and rarely used, circumstances that have had no little weight with us in bringing it forwards now to make its merits known, and perhaps inducing some of our readers to give it a trial.

And now the question may be asked, "Will such a pit or frame, so heated, be useful and manageable to an amateur who cultivates his little stove, small greenhouse, and small flower-garden himself?" We answer, decidedly, and advisedly—Yes! With due attention, and using the proper precaution, he would find such a structure an invaluable assistant to all his plant habitations. To have different conveniences to suit his circumscribed wants, it would be easy enough to partition the frames into divisions, by placing one of boards or slates, or even bricks, under each rafter, and then by warmer covering for one division, and less for another, and none at all for a third, giving air accordingly, he might have with perfect certainty three separate temperatures, which would suit plants requiring each. Thus—one might be for stove plants and their cuttings; another for greenhouse grafts and cuttings; and the third for bedding-out plants for the flower-garden. And as this is the very period when such a structure will be most useful, we trust our communication is well timed. T. APPLEBY.

FLORISTS' FLOWERS.

PANSIES.—This almost ever blooming favourite should now have its due share of attention. The weather, hitherto, has been so mild, that the plants in beds are beginning to grow, and in some instances show flower. If any shoots stand high from the ground, it will be advisable to pin them down to the ground with hooked pegs, this will prevent the cutting March winds blowing about, and perhaps twisting them off. Any that the frost may have loosened from the soil, must, on some dry day, have the soil pressed pretty firmly down to them, so as to fasten them in their places.

DAHLIAS.—As the shoots become three inches long, continue to take them off, and put them in heat in sand to strike. Keep border varieties yet in their winter quarters, it is too early to plant them in the open frame.

T. APPLEBY.

THE KITCHEN-GARDEN.

JERUSALEM ARTICHOKES should at once be trenched out, and the next season crop planted, if not already done. *Globe Artichokes* should have their protecting material loosened, and put away a little from the suckers, in order to prevent their stems being weakened and blanched.

ROUTINE WORK.—Spring crops of *Cabbage* should be planted in succession, and a liberal sowing made; also a sowing of *Borecole*, *Brussels Sprouts*, *Red Dutch Cabbage* and *Savoys*. *Cauliflowers* should be planted in the quarters and borders in full crop, and a sowing made: the plants of former sowings being also pricked and nursed on. The main and full crops of *Beans* and *Peas*, if not already sown, should be done forthwith; and those peas and beans growing on strips of turf in wooden shoots, boxes, pans, or pots, should also be planted out neatly, and at once be dredged with dry dust. A little *Celery* may be sown on heat for early purposes, also *Chervil* and *Corn Salad*. The planting of *Horseradish*, *Sea-kale*, and *Rhubarb*, should be finished. The crowns of the early *Rhubarb*, if slightly protected with a little loose straw, fern, or other material, may be considerably forwarded. The crowns of the early forced *Sea-kale* should be looked over betimes, in order to rub off all spurious, small side-shoots, leaving only one or two of the strongest crowns. *Onions* may be sown on any light, early soils that are in good condition, but not unless both soil and weather are entirely favourable for the purpose. The *Autumn-sown* and *Pe-*

tato Onion, *Shalots*, and *Garlic*, if not already planted, should be attended to at once. For *Sea-kale seed* and *Asparagus*, we always find it the safest time to sow the beginning of April, as, if sown earlier, the morning frosts often kill or cripple the young plant so, that they never afterwards thrive well. *Round*, or *Flanders Spinach*, should be sown little and often in single drills. Every piece of ground, as it becomes vacant, should at once be trenched and ridged; and our oft-repeated directions for surface-stirring kept in mind to prevent weeds, disease, or destructive vermin, making their appearance.

CHARRING.—Wood dust, commonly called saw-dust, is an article that may be turned to valuable account by charring, but it requires some care to char it well; that is to say, to *roast* it black, instead of *burning* it to ashes, and there are more ways than one of accomplishing the desired object. One plan that we have successfully tried, is by forming a chimney with three stakes set up, or driven into the ground, in the shape of a triangle, as previously recommended, and tying round the outside of these a little straight straw, furze, or brushwood, just enough to prevent the dust from running between the stakes, and choking up the intended chimney. It is first necessary, in beginning to pack, to place next the base of the chimney, a few shavings, refuse chips, furze, brushwood, hedge-trimmings, or open rubbish, and then to commence packing the dust very firmly against it, beating, ramming, or treading it well, and working in, at intervals, as the packing proceeds, a little of any of the above-mentioned refuse, to prevent it from getting air-bound, which we have found that it sometimes will do, if wood-dust only is packed for charring by itself. The heap, or kiln, may be packed to any desired height or dimensions, always remembering that the larger it is, the longer time it will take to char properly. All that is required to be done when the heap is formed to the intended size, is to give it a thin covering of fine earth, to withdraw the centre or chimney stick, introduce the fire at the base, by dropping down a small quantity of live embers, and, as soon as properly ignited, to place a sod over the summit; introduce draught holes all round, within a short distance of the summit, as previously advised, and thus continue to block and open fresh holes as the charring proceeds; if, at the first igniting, or even afterwards, it should get air-bound, or too slow in burning, we have found it an easy remedy to thrust, from the outside base to the chimney base, a good sized stake, to admit air at three or four places, which may be again blocked when all is going on well.

Another plan, which we have found very good, is to lay a small train of straight straw, brushwood, or furze, &c., from the base of the chimney to four opposite points, previous to commencing the packing. But where there is a large quantity to be charred at the same place, it is the best plan to form out a little three or four-inch trench from the base of the chimney to four points, and to cover them either with refuse, outside slabs of board, or brick. Air is thus at full command when required, by merely opening the mouth of either trench, or the whole of them, as required, and punching a hole through the summit *sod* with the kiln-stick, or, as it may perhaps, be termed, the ventilating stick; the stopping up the whole or a part again, must be regulated by the progress the fire is making; sometimes the effect is so quick, that it is quite necessary to block up again almost immediately; but these are matters over which the effects of weather, and the condition the material is in, have great influence, and a little experience and watchfulness in its progress will soon render any one efficient in such matters.

There is also another method of charring wood-dust, where a large quantity is made, which is, to put it into a pit or hole, where it can be well moistened and trodden by horses, and, when half decomposed and well intermixed, to mould it out the size of bricks, and place these to dry, when they may be easily packed for charring. Fresh wood or saw-dust is also very useful in assisting clay and earth charring, by mixing a portion amongst it when being packed for charring. JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING FOR MARCH.

SEEDING PERIOD.—From time immemorial, doubtless, March would constitute a period when our venera.. e ancestors would begin to think of their seed bags—alth.ugh not stuffed, in those days, with such new fangled : ings as mangold, the swede, &c. And, indeed, useful as they are—nay, almost invaluable—still the old-fashioned turnips cannot be dispensed with, neither the carrot, the origin of which, in its present highly improved state, must, we suppose, be sought for in the dusty records of byg .ie days.

Having promised, in the February paper, to pursue a little farther the subject of mixed or associative crops, we now resume the subject.

ONION SOWING.—These valuable bulbs, which form one of the most important condiments of the cottier, to say nothing of their immense consumption by every cook,—these, we say, are a well-known late harvester in most parts, and good cultivators are generally anxious to get the seed in as early as they think it safe. However, extremes must here be avoided, for we have frequently known a good crop completely paralyzed by a too early sowing. The young plant will endure a moderate white frost or two in April; but a May frost—a thing not altogether unusual—is indeed, in Shakspearian terms, "a killing frost," or, perhaps, a nipping frost; for the blade will become so injured at times, that the crop never fairly rallies, and this mishap is aggravated in proportion to the luxuriance of the crop. Let me not, however, deter folks from a somewhat early sowing—say in the second week of March. We must also advise against a too liberal application of manures. The market gardeners about London make a practice of taking a crop of coleworts or cabbage from the ground intended for onions, the manure being applied to the cabbages. They, in general, sow broadcast, but for limited gardens we prefer beds; for in the broadcast way the culture is carried on by means of small hand hoes, in the use of which their men are peculiarly expert; and we have always found it difficult to get this work done to our satisfaction in the country. Beds, moreover, of forty-two inches in width, are easily reached by a cottager's children, and all the weeding should be done by them—making, in all cases, bed crops capable of being reached easily, without the foot being placed on the beds. Our market men generally throw a sprinkling of lettuce seed with their onions; but these are withdrawn if the onions thrive well. A sprinkling of radish might be added also. Let those who would desire a good crop take care that all spade operations are performed when the ground is very dry. We generally sow when the soil is dusty, and we always tread it in as hard as feet can make it. Let no one, however, tread if wet. We then cover thinly with soil—say the thickness of a dollar—giving it a slight raking after; and then, in a fortnight or so, when very dry, we roll the surface. One ounce will sow a bed of this width about twelve or fifteen yards. Onions are generally a profitable crop to the cottager, for they generally realise good prices; and, as another recommendation, it may be observed, that if they fail, they generally fail in time to enable the cultivator to establish some profitable autumn crop on their ruins.

PARSNIPS.—These require sowing early, for they are always somewhat late in perfecting their roots, which are assuredly amongst the most nutritious of this class of vegetables. They can scarcely be applied amiss, whether to

cows or swine, not forgetting our own species. Now, these things, like the carrot, are generally recommended by high cultivators to be sown in drills; and not without reason. The high culture involved in the drill practice is universally known and highly esteemed. Still, we ought not, in all cases, to take only an abstracted view of any question, for we are quite prepared to show, that the practice of the farmer and the cottier may, and ought sometimes, to differ with regard to root or green crops. As an associative crop, then, the parsnip may be grown on the double drill system—that is to say, pairs of drills within nine inches of each other, the centres of each pair a yard apart.

At this season, between the parsnips, cabbages may be well cultivated; but, to gain any positive advantage with this combination, the cabbages should either have been planted last October, or introduced immediately after the autumn-sown plants. A line being drawn down each centre, a row of cabbages may be planted about six inches apart all down each side of the line. The rows of cabbages will be thus about nine inches apart also. The kind should be Matchless, York, or some of the early hearting kinds; for we would have the cottager grow no other, except a few Drumheads for autumn cow-feed. These plants should be in heart in the end of April, and then bunched and sold at the nearest market. By this time the parsnip would be a nice plant; and then we would hoe carefully through them, single them out, and eradicate every weed;—this done, rough dig the ground where the cabbages stood.

In July, a double row of curled kale, Brussels sprouts, or even swede turnips, may be planted just where the cabbages stood: we should prefer the kale, especially the tall kind. For this course of culture, the ground should have been pretty well manured previously. If parsnips are sown by themselves, they should be in rows at least half a yard apart, and the plants must be singled out, finally, to about eight inches. Sow in the last week of February.

HORN CARROTS.—We wonder how long it will take to persuade the cottager or allotment holder to increase the culture of this most valuable root? The fact is, that people who do not understand its peculiar capability of being got early into the market, and of their realising thereby an astonishing profit (through the close culture of which it is capable), simply compare the full grown root with those of the Altringham, or larger kinds. This is the folly, for we can give it no milder name. Now, we are prepared to prove, that the culture of the Horn, rightly carried out, will yield thrice the profit of the larger kinds; for we will undertake to produce *two full* crops between the first week of February and the first week of November, on the same plot. We have before alluded to this affair, and suggested that, whenever the cottager has a light, or fine and favourable soil, he should, if a good market be at hand, endeavour to pay a good portion of his rental by these things. Three or four poles of ground under high culture, sown in the first week of February, and receiving a protection similar to early radishes, would keep his wife and the larger bairns bunching and marketing all May and June.

RHUBARB.—Here is another article of easy culture, and one which may readily form part of an allotment plan; at least, the production of very early rhubarb for the neighbouring market. Those who possess a free and generous soil, and a warm and sheltered nook or slope of ground of a pole or two, may realise a very considerable profit by a little extra attention or labour, for it is principally by such means that a cottier must expect to better his condition.

Those who would commence in earnest, should procure and plant some nice young plants, immediately, of the Victoria, or some good and early kind. The soil should be trenched deep, and dung introduced between the spits, placing the raw material, weeds, &c., below, and keeping the rotten manure at a higher level. The plants will require to be a yard apart. About after culture, and a simple mode of getting it early for market, more by-and-by.

LEEKS.—An excellent ingredient in the poor man's soup or broth. No cottager should be without a small bed or row of leeks. They should be sown directly, and if they can be planted in a trench like celery, and manured in a similar way, they will prove a very superior article, both in size and quality. They will be half as thick as a stout man's wrist, and, being earthed-up, will be eatable for nearly a foot in length. When in this high condition, they are equal, well boiled, to the finest sea-kale; and should be eaten with a little butter and salt.

PEAS.—A good row in the first week of March, and another in the last week, will produce peas from the beginning of July until the end of August. We recommend the Green Imperial for both sowings, for it is a heavy cropper, and is sooner off the ground than any other; and this enables the cottager to pursue a most economical course, by securing a good after crop the same autumn.

BROAD BEANS.—These have been so freely dealt with previously, that we need add little. It may be observed, that they are not an allotment crop of any profit, if planted after the middle of March.

CABBAGES, GREENS, &c.—It is difficult to assign any given period for the sowing of these useful tribes, when they form associative crops, or are intended to succeed any given spring or summer crop. Most of our readers are, doubtless, tolerably familiar with the time it requires for cabbage, green kale, or other greens, to become fit for transplanting; they must, therefore, sow accordingly. As a general maxim, sow a little dwarf cabbage *every month*, from the end of February until the end of August. Sow green kale in the third week of March; savoys in the beginning and end of the month; Brussels sprouts as the savoys.

MISCELLANEOUS MATTERS.—Having for the present month despatched the principal crops which concern the allottee or cottier, we will just bestow a passing glance on a trifle or two, which not every one can or will attempt.

SPINACH.—This may be sown in the first week, soaking the seed in tepid water for one night. It is a very wholesome thing for either cows or pigs; and, since it may be taken as a stolen crop, it is well to have some, providing ground can be spared.

CABBAGE PLANTS.—Every remaining plant should be got out in the first week of March. If of the dwarf kinds, every one will be useful, and they may be "dodged in" almost anywhere, as they will be soon off the ground. If much pressed for room, plant a bed or two, manured, at six inches apart; and if the kind be the true Matchless, the produce will be enormous, and in a very short period.

LETTUCES.—A little Paris Cos, and some Drumhead Cabbage lettuce, may be sown amongst the onions, as before observed. It is well, however, to sow a pinch of the former in a *very warm* corner, immediately.

JERUSALEM ARTICHOKES.—These must be planted without delay. Any rough corner will do for them; and they would not make bad divisions to allotment plots, or boundary protection.

STORE ROOTS.—All potatoes in pits should be carefully examined forthwith, if not already done. Suspicious samples should be hurried into the market, after picking the roughest out for the cow or pigs. All those for seed should be immediately spread on some floor.

SWEDE TURNIPS.—These begin to sprout betimes; and those who can find time, and desire to keep some very late, will do well to strew them abroad some fine sunny and windy morning, on a safe day; they will be well dried, and the vegetative powers checked, by the afternoon, when the sprouts may be rubbed, and they may again be housed or pitted.

CARROTS may be served as the former.

PARSNIPS.—All those left in the ground must be trenched out forthwith, their crowns cut off, and served as the swedes.

As a concluding piece of advice, let all digging, levelling down, drill-drawing, sowing, &c., be performed when the soil is very dry. No crop can be counted secure which is got in whilst the ground is wet; besides, such involves double the amount of after labour. Let the allotment holder make up his mind to give no quarter to weeds, and, to be in earnest, he must make an early start. No manures should be left uncovered after the beginning of March; if any is wheeled out, and not spread or dug, let a thin covering of soil be put over it, smoothing the surface to keep out the rain.

R. ERRINGTON.

THE YEARLY TRANSACTIONS OF THE HEN-YARD.

A PRACTICAL GUIDE FOR THOSE WHO MAY WISH TO KEEP A FEW FOWLS AND FIND THEM PROFITABLE.

I HAVE reason to say it is both an easy, and a pleasant thing to keep a sufficient number of fowls, for the supply of a family with new laid eggs, and a few nice chickens for the table in autumn. But, if the space you wish to devote to their use, be a small bit of ground, at one side of your house, do not, as you value your poultry's comfort and wish to find them profitable, crowd it with as many cocks and hens as should run over a quarter of an acre. A number of hens, however small in proportion to the ground allotted to them, I have no hesitation in saying, will repay the care and expense bestowed upon them.

As I now look forth upon the pleasant orchard, dotted over with fine Cochin China, Spanish, and common fowls, I can yet think with pleasure of my first attempt at poultry keeping, nine or ten years ago, when one fine day in March I became the happy, but unprepared possessor of a common cock and four little hens: no gardener was at work—no materials ready—all the facilities that presented themselves were two or three pairs of little willing hands, an old kitchen table, and a few rough bits of board; the theatre of action, a small yard, some ten feet by twenty in measurement. The old table, placed on end nearest the warmest angle of the yard, shaped out the future hen-house; a roof and front of the loose boards; an old broom handle for a perch, and a basket for a nest, completed the accommodation for this very humble stock of poultry. They, nevertheless, gave a good supply of eggs; because, I believe, humble as the appointments were, the number of fowls was small in proportion.

After this I raised a number of chickens, and felt most averse to have any killed. The poultry-keeper must not encourage this kind of sensibility. Some were pretty, some were good; my number became too large, and the fowls were less profitable. My position approached that of some, who keep hens, and talk of the eggs costing sixpence each. I became on the point of giving up the poultry; but, instead, I persevered and learned by experience. I did not give them up, and nine years have since passed away. The result of these nine years' experience, I now endeavour to render as plain and as short as possible, in hopes that some persons who feel pleasure in keeping a few fowls, may avoid the disappointments that I have experienced, and arrive, by an easier road than that which I have followed, at my present success.

It must not be supposed that these papers are intended or are likely to interfere with those larger works on poultry, so useful to the poultry-fancier; and if the reader is struck with the constant repetition of *I* and *my*, I hope he will recollect with indulgence, that these notes are the result of *my own* experience, and pardon the egotism.

With regard to the kind of fowl to be kept, perhaps the most profitable for eggs and for the table, is a mixed breed from good sorts; but these, of course, have not the same money value, as those of any good breed kept pure. Of such of the choice kinds as I can speak of from experience, I will say a few words at a future time. This present introductory chapter, I will conclude with half a dozen general rules.

1st. I would particularly recommend, that the stock of fowls be rather small, in proportion to the space you can spare for them. If they are confined to a yard, six hens, and one cock, will be quite sufficiently crowded—from the time the chickens grow up, until they are eaten, or otherwise disposed of.

2ndly. Let the fowls have a constant supply of clean water to drink, and abundant, but not wasteful, feeding. They should eat up clean, and if they then still seem hungry, give them more. Always count the fowls after they are at roost, and see that they are comfortable.

3rdly. Let their food be varied. It is a good plan to let one meal consist chiefly of soft food, such as boiled or roasted potatoes, meal, middlings, a *very little* cooked rice, and things of that sort; the other to be corn alone. If any bread is given, it must be well soaked. A little green food is good, especially in warm weather. Two meals a day are enough for grown up fowls; but young chickens must eat much more frequently—five, or three, times a day, according to their age; and, at first, oftener than that. Barley is the best corn for making hens lay abundantly, and this should be of good quality. It may be sometimes varied by a fortnight's feeding on oats, or rye, with a few peas. Wheat is very good, but too dear to buy at full price. But, whatever the corn, give one good meal a day of it, and just a little with the other meal.

4thly. All poultry, but especially those which are confined at home, must be supplied with a hillock of gravel and old mortar-rubbish, or lime, in some form or other. Gravel, from which to pick up little stones, is necessary to keep them in health, by assisting digestion; and, without lime, they cannot lay abundantly, as they require this material for forming the egg-shell.

5thly. I suppose I should say something about a hen-house, on account of those who may have the power to choose; although with most persons it may seem superfluous, as many are glad to make use of any outhouse they may happen to have: to such, however, I would say by all means render it warm and weather tight; and if you can by any contrivance give a warm house, with a south aspect, your supply of eggs will be all the better. The yard where the fowls run should be paved or graveled, for the damp cold of a muddy place is very injurious. My present hen-house is a warm stable, looking to the south. In very wet weather I confine them to it almost all day; at other times they have a paved yard; and, in the middle of the day, are allowed to run out into an orchard, to peck grass and insects for three to five hours. The fowls do exceedingly well, and give a good supply of eggs from the beginning of December to the end of October.

6thly. Fowls will never thrive unless they are kept very clean. The house should be cleaned with birch broom and shovel once a week at least, however small the number of fowls; much oftener if there are a good many. It should also be lime-washed at the commencement of the warm weather, and two or three times during the summer. The nests must be kept clean and sweet, and prevented being used by the young fowls for roosting places. They should be washed once a month, or whenever from muddy weather or other causes they happen to get dirty, then dried before the fire or in the hot sun, and supplied with clean straw, well rubbed and broken up. The fowls should have access to fine dry gravel, earth, or sand—or to a dry dust bin—for purposes of cleanliness, that they may be able to clean their feathers, and keep them free from vermin.

(*To be continued.*) ANSTER BONN.

THE APIARIAN'S CALENDAR.—MARCH.

By J. H. Payne, Esq., author of the "Bee-keeper's Guide."

HIVES.—The time has now fully arrived for all careful apiarians to possess themselves of as many hives, glasses, boxes, bee-dresses, &c., as they are likely to require during the coming season; and to those who prefer the use of straw hives, I would say (and that most emphatically), never put a swarm into an old hive. Mr. Huish has said, and with much truth, that old hives are generally so overrun with vermin of an obnoxious character to bees, that, even should the swarm condescend to remain in them, the ensuing winter will place the hive in such a ruinous state, that the bees will forsake it in search of a more salubrious domicile, or the contents of the hive will be destroyed by the insects. Boxes that have been already tenanted should be cleaned most carefully, and boiling water, from the spout of a tea-kettle, poured over the joints where the eggs of the Wax moth—that redoubted enemy of the bee—will very probably have been deposited.

FEEDING.—Great attention must be given to spring feeding; it is always beneficial, and generally necessary, but more especially so this year, for two reasons: First, on account of the last season being a very bad one; and, secondly, from the universal mildness of the present winter, which has caused a much larger consumption of food than is usual. I have this day, January 27th, observed my bees carrying water into their hives very abundantly, which shows that breeding has commenced, and which makes the feeding of weak hives still more necessary. I have, also,

observed them to-day, for the first time, endeavouring to brush the pollen from the anthers of the winter aconite into their little baskets,—a very gratifying sight this to a devoted apairian.

SHADING BEES.—I read, with much pleasure, the paper of "A Country Solicitor," on shading bees, in the 121st number of THE COTTAGE GARDENER, because his experience exactly accords with my own; for in every case where I have seen it tried, by placing them in the north, it has proved, more or less, a failure; indeed, I once saw a remarkably fine stock in a Nutt's hive entirely destroyed by being placed in a north aspect for the winter. I believe the only chance of success will be to place the hive which is to be experimented upon in a bee-house, and to let it be a *swarm of the day* in which it is placed in this situation, and not a stock removed from another place. I have already recommended this experiment being tried, and some of my friends have agreed to attend to my recommendation, and to give me the result, which I hope to be able to give in full, at some future time, in THE COTTAGE GARDENER.

WATER.—Water should now be supplied in a convenient place nigh to the apiary, but in a place where the sun shines upon it all the day. *This is important.* I have for the last year used a pan of zinc, nineteen inches by nine, and four inches deep, with a float of thin wood perforated with holes. The result of my experiments with salt mixed with the water, and the preference given by the bees to water without salt, I have already stated in a previous paper.

IMPROVED COTTAGE HIVES.—I take this opportunity of saying, that my hive-maker has been busily employed, during the winter, in getting up a stock of hives, which I shall feel much pleasure in directing to be forwarded to any persons who will make application to us for them.

NATIVE WILD FLOWERS.

FEBRUARY.

FEW and far between, as the stars of a summer sky, are the wild flowers of February. They are unassuming too in their aspect, and gain their chief interest by reason of their presence at such a peculiarly flowerless season, when the melting snows lay bare a world of desolation and cheerless gloom. First on our list of the floral heralds of coming spring is the pearly and peerless Snowdrop; that fragile thing which peeps from the bare herbage of the woods and hedgerows, craving our pity amid the ruthless buffetings of the storm, while its beautiful yet unassuming form at once excites our warmest admiration. We prize it as a "holy thing," and forgetting not that

"A thing of beauty is a joy for ever,"

we, season after season, keep the little gem in fond remembrance, and earnestly watch the dissolving snow-wreaths for the first appearance of its "dangling blossoms." Much as this little flower is loved by every one, it is he alone

"Whose pleasures are in wild fields gathered,"

that can fully estimate its worth and beauty. *He* views it as the "herald of a brighter bloom;" and sees mirrored in its pale drooping flower a thousand gayer blossoms that will ere long be fresh and blooming in the lap of flowery May.

"Pleased, we hail thee, spotless blossom,"

for thou art rich in promise of green fields and flowery meads, singing birds, bright skies, and sylvan beauty. Thou bearest the welcome tidings of the coming of thy fair sister, the Lily of the Vale, and of her meet companions in the May wreath, the fair Narcissus by the mirroring waters, and the dancing Daffodil of the woodland glade! But still methinks lovelier than all is thine own modest form,—so pure and so graceful thy simple green and white array. *Galanthus nivalis* is the becoming name by which botanists designate this lovely favourite. Although not a rare plant in some districts, it is by no means common generally; and its right to a place in the British Flora is questionable, and has been questioned repeatedly. Certain it is that if it was originally introduced at a remote period into this country, it has now acquired a prescriptive claim to British soil. The chief objection urged against its being a true native is, that it is generally found in orchards, beside old castle ruins, and in woods and bye-lanes, often where a cottage has stood, as well as in other suspicious habitats. Few, however, of the admirers of the Snowdrop whose eyes may scan this page, will care to look upon it as the child of another clime; for the writings of our native poets, and the earliest observations of our woodland wanderings, have taught us instinctively to claim it as one of our own wild flowers. Nor will *all* admirers of our native Flora readily accede to the strong disposition evinced by the British botanists of the present day to regard many of the most beautiful wild flowers of our land as aliens from another clime,—a disposition by no means evinced in the same degree by the botanists of any other age or country.

The golden glow of the Furze gradually increases in brilliancy, upon the hills and moorland pastures, during the present month; and should the present, *too* genial weather continue (I write towards the end of January), we shall very soon have a rich display of spring flowers, before their customary time. The Daisy, the Shepherd's-purse, the Chickweed, and a few other never dying flowers, still continue to produce a few blossoms as they have done throughout the whole winter; but the month must be considered a peculiarly barren one for wild flowers, although those that do appear are exceedingly interesting,—"the first offerings of the infant year."

In my last month's paper on wild flowers, I intimated my intention of taking an early opportunity to offer some observations on the interesting tribe of Mosses, and their cultivation; but in the very same number of THE COTTAGE GARDENER in which that intimation was made, a highly interesting paper on the cultivation of Mosses was published, which, being from the accurate pen of so excellent an observer as my friend Mr. Stark, renders it quite unnecessary for me to enter upon the subject. The instructions given by Mr. Stark will, I have no doubt, encourage some of your readers to attempt the cultivation of these interesting plants; and I trust we shall hear how they succeed through the pages of THE COTTAGE GARDENER.

G. LAWSON, F.R.P.S., F.B.S.

THE DOMESTIC PIGEON.

(*Continued from page* 280.)

THE DISEASES OF PIGEONS.

IT seems that man, in subduing animals and civilizing them, has caused them to partake of inconveniences as well as the benefits of this civilization. All domestic animals are attacked with disorders, more or less dangerous, unknown to those which live in a wild state. Horses and dogs, and all the different species of cattle, are examples of this. Pigeons are even more unfortunate; for, not being so valuable, much less trouble has been taken to study the complaints they are subject to, and to seek proper remedies to recover them. The majority, also, of their diseases are considered as incurable; and the little attempt that has hitherto been made to render them relief is far from being satisfactory.

Moulting.—The most general law, perhaps, that Nature has imposed on animals is, to renew frequently during their life, the hair, or other bodies, which serve them as outward coverings; and when this renewing takes place during a certain season, it is called moulting. All birds moult at a fixed time of year—a little sooner or later according to the species and climate. Pigeons generally begin to moult about the end of July; and, with some of them, it lasts almost to the beginning of winter. The pigeon that gets over this operation of Nature the best, is still in a state of suffering and weakness for, at least, two months. During all this time its indifference for its mate is remarkable; it is even sometimes carried so far as to make them uncouple. Captivity is one cause which frequently renders moulting dangerous; the want of exercise and activity makes it degenerate into a painful complaint, which the birds support for some time, but which always ends in death. It presents itself with different symptoms, which we will now describe:—

1st. We perceive that the bird has great difficulty in breathing; at every respiration its tail beats up and down,

and its breast has a convulsive movement. These symptoms increase so rapidly, that by night, or the next day, the animal is in a desperate state.

2nd. A bird sometimes joins other symptomatic characters to this one. Its beak remains half open, and a slimy humour appears inside, which soon hardens, and has a yellowish colour, and announces the existence of an ulcer in the throat.

3rd. Other symptoms may also accumulate before death, such as the drooping of the wings, starting of the feathers, and seeking out the darkest corners of the dove-cot.

This disease, when indicated in the two first ways, is not always incurable. When a young bird is affected by it in the first degree, we may hope to save it, by keeping it to a strict diet, as by feeding it with pure barley, and giving it water to drink, with a little alum dissolved in it; and, giving it a little salt. As soon as the intenseness of the complaint decreases, we may leave it to itself; in time it will entirely recover. If the complaint has arrived at the second degree, we shall apply the treatment described for young pigeons; and, if the ulcer is formed, it must be treated as we shall describe presently in the article "ulcer"; but, if it presents the symptoms of the third degree, there is no hope of its recovery—at least, unless Nature makes an unaccustomed effort.

It frequently happens that a bird remains the rest of its life ill and weak after a bad moulting; its constitution being so weakened, that the disease may reappear every year, at the same time, and with the same virulence. This bird will never be good for any thing; and the amateur who does not wish to waste his grain and space, will remove it from his dove-cot.

False Moulting is a moulting that has been hindered in its progress by several particular circumstances that one cannot entirely foresee. Whenever moulting is not general, it is a false moulting, and very serious accidents result from it. Generally, the bird affected in this manner remains the whole year in a weak state, and at last perishes. It is not so dangerous when it only has produced some feathers turned the wrong way, but the bird suffers almost as much. Sometimes, in a neglected dove-cot, a bird dies from not being able to throw off three or four large wing feathers; but the careful amateur soon perceives this accident, and applies an easy remedy; he plucks them out, taking care not to break them, or tear the flesh that adheres to the quills. As to the other inconveniences of the false moulting, they resemble those described in the preceding article, and are treated in the same manner.

Diseased Ovary (Avalure) is a defect of conformation in the ovary or womb, proceeding from an accident that may happen at every age, but particularly when a bird is old. We may discern this disease, by a large hard substance that may be felt in the abdomen of the female, which has caused some merchants to believe that the gizzard or stomach of the bird had fallen into the ovary. A female affected with this disease is incurable; she will remain barren all her life; but she may still live some time. If we cannot cure this disease, we may at least prevent it, in more cases than one; for we know that it is generally the result of too much ardour in the male. If he hastens her too much in laying—if he persecutes her—it is almost certain that he will give her this complaint; therefore, as soon as we perceive this we must immediately take him away, and, bring to her a less amorous mate.

(To be continued.)

DESCRIPTIONS OF PIGEONS.

SEVENTH RACE.

(Continued from page 279.)

SPECKLED PIGEON (*Columba maculata*). — Buffon, and other naturalists who have contented themselves with meanly copying him — even M. Vieillot himself — have ranked these pigeons with the Pouters, although they differ from them essentially in their figure, which is smaller; their throat, which is not nearly so much swelled; their legs, much shorter; and their wing coverts singularly remarkable for the handsome spots with which they are covered. The last author we have just quoted, thinks they have been produced by crossing the Pouter with the Mixed Pigeon. These birds are very productive; they often have young ones and eggs at the same time. They fly well, and travel some distance in search of food; they are not nearly so delicate as the Pouters, nor are they subject to the same complaint of the crop.

43. BLUE SPECKLED, OR JACINTH PIGEON (*Columba maculata cæruleata*).—The head and tail, slate colour; end of the

tail, darker coloured; the large quill feathers of the wing, white; the cloak, or covert of the wing, white, spotted with light blue, with a blue and a black stripe placed at the extremity; all the feathers that are streaked with blue have the under side blue, and the outside has a large white space edged with a blackish embroidery; no embroidery round the eyes; and feet naked.

44. ENTIRELY BLUE SPECKLED PIGEON (*Columba maculata cæruleata plena*).—A little smaller than the preceding; and differs from it in the large quill feathers of the wing, which are entirely blue.

45. FLAME-SPECKLED PIGEON (*Columba maculata ignescens*).—A blue, red, and black stripe across all the feathers: the black stripe placed at the extremity; it differs essentially from the Jacinth, having a sort of red-coloured spot instead of white.

46. ENTIRE FLAME-SPECKLED PIGEON (*Columba maculata ignescens plena*) —The only difference between this and the preceding, is in the large quill feathers of the wing, which are black, reflecting a kind of reddish brown.

47. TAWNY-SPECKLED PIGEON (*Columba masculata fulva*). —Resembling the No. 45, but with speckles approaching to to a fawn colour. It is a mongrel, proceeding from Nos. 43 and 45, but forming a constant variety.

48. LIGHT BLUE-SPECKLED PIGEON (*Columba maculata rubiginosa*). — Spotted like the preceding, but resembling Nos. 43 and 47, of which it is a mongrel, and forming a constant variety. Speckled light blue; and large quill feathers of the wing white. This last character, according to some authors, makes it a pigeon of a pure race, which sufficiently proves the carelessness of their observations.

49. ENTIRELY LIGHT BLUE-SPECKLED PIGEON (*Columba maculata rubiginosa plena*).—This only differs from the preceding in the large quill feathers of the wing being of a bluish black. These birds, and the Swiss Pigeons, present us with the most brilliant and rare colours.

(To be continued.)

HINTS TO COTTAGERS.

THE chief object of my present paper, will be to try and lay before my humble readers the pleasure of having a comfortable, clean cottage, and a well conducted family: and I also hope to give a few plain, useful hints, towards obtaining these ends. There are a few cottages, in every parish (would that there were many more!), which might

serve as models; but neighbours will not readily take example from each other; this is much to be regretted, as much good is always done to both parties by setting and following a good method. There are, I suppose, faults on both sides—the thrifty and tidy cottager, perhaps, holds her head a little too high, not remembering that if she is freer from outward faults than her neighbours, it is by God's grace that she is so. Whilst, on the other hand, the untidy and careless, fear to look into matters, knowing that they have no excuse (which will bear inspection), for the difference that exists between them.

Truth is generally unpalatable; but people will often bear to *read* it, when they will not *listen* to it; and, therefore, perhaps, a few random shots from the pen of an unknown "Friend," may "come home" to the fireside of some of my readers. "Idleness is the root of all evil," is a proverb of which we see the truth every day. There are two sorts of idleness—idleness of the body and idleness of the mind; and I am very sure, most of the wretchedness seen in our villages is caused by the latter. A very great deal of the happiness or misery of a cottage home depends on the wife; "A man must ask his wife's leave to thrive," is a true saying; for of what use is it that a man brings home, regularly, his hard-earned wages, if they are not made the most of by the wife? Two things are very necessary to be learnt, before you can become a good manager, and they are—activity and forethought. If the wife lounges about the house, looking at the dirty state of things, and wishing they were clean, will they become so? or, if she stands at her door, chatting to the passers by, till the hour is passed when the potatoes should have been in the pot, and then suddenly remembers that they are not washed, can she be surprised at receiving cross words from her husband on his return? The sure way of driving a man to the ale-house, is to make his home uncomfortable. Cleanliness is one of the first points to be attended to, in order to make a cottage comfortable. Do not imagine, because you have but little to spend in soap, that, therefore you cannot have your home clean; this is a mistake—boiling rain water and some nice, pure sand, will make boards look as white as you need them; and though for your clothes some soap is required, yet very little will suffice, if you boil wood-ashes with the water in which you intend washing them, and as for the cleanliness of yourself and the children, hot water and a hard cloth is all that is required. Do not imagine, because your kitchen is clean, that the rest of your cottage need not be attended to; this is deceiving yourself, and setting a bad example to your children. You are in hopes that your girls will get into "respectable service," when they are old enough, are you not? Well, then, be sure they will never make good servants, and, consequently, never get good places, unless they are early taught habits of cleanliness: "Train up a child in the way he should go, and when he is old, he will not depart from it." Do not (as many bustling, hard-working mothers do) perform the hard work yourself, and leave the girl to "mind the baby;" this is a bad plan both for her and for yourself. Make your children assist you in everything you have to do; it will require a little patience at first, but you will soon be repaid, by the amount of trouble they will take off your hands. Most of you work hard for your children's bodily welfare: are you as earnest for their minds and their souls? Do you see that they attend a school regularly? Remember, if they do not learn to read, and sew, when they are young, it is very unlikely that they will do so when grown up. How many a weary hour has been profitably and pleasantly passed, even in health, by being able to read; and when an accident, or illness, overtakes you, what a delight it then becomes; and, as you never know "what a day may bring forth," it behoves you to prepare them for a day which is sure to arrive—I mean a day of adversity. Do you provide for the spiritual wants of your children, by attending to family prayer, and reading God's holy word once during the day; and do you accompany them to a place of worship on the sabbath, teaching them, on that holy day, to abstain as much as possible from all work? And now, having gone thus far, let me give you a few rules, in order to make your homes happy, and to keep your husband from the ale-house. Rise early; offer a prayer to Almighty God, who has preserved you through the night, before you leave your room; have your children washed and your kitchen clean, before your husband returns to breakfast, which, of course, you will have ready for him; mend your clothes before they go into the wash tub, and, if possible, get your washing out of the way before the dinner hour; have a hot, nicely-cooked dinner ready, by the hour you expect your husband; in the afternoon, attend to your garden as much as you can; and, in the evening, have a bright fire, a warm supper, a clean apron, and a smiling face, ready to greet your husband, and I will answer for it, he will not leave his own fire-side. After supper, put the children to bed early; take your work up and ask your husband to read a chapter in the Bible to you. Attend to these rules for a month, and many a cottage home will become "the model" of the village.—A FRIEND.

PEGGING-DOWN.

Having seen, in one of the June numbers of THE COTTAGE GARDENER of last year, in the flower-garden department, a paragraph headed "Pegging-down;" and having read the various ways that Mr. Beaton has enumerated, I have to offer a far superior one to either. The pegs we use, or rather *broaches*, are made with the wood of the Snowberry, and though all parts of the wood are usable, the last year's shoots are the best.

The broaches should be about six inches long, split in four parts, or more, according to the size of the shoot, then taken between the two fingers and thumb—writhed or wrung precisely as a thatcher does his broaches, and then thrust into the ground. This fixes the plant like a staple, as firm as possible, and has no unsightly appearance, indeed no appearance at all, and as few shrubberies are without this material, broaches of Snowberry can be had with the greatest facility. We grow some on purpose, and have used nothing else the last seven years, since their introduction, and as they can be made in wet weather, ready for use, the time saved when they are wanted is a desideratum, a very little practise will render any one expert in making them.

I take no merit to myself for this *invention*, as I inherited it from my father, except that I discovered the Snowberry to be the best material. Some thousands may be made in bad weather ready for use, and if they should be too dry when used, lay them in water a short time previously to using, by which means the saving of time is very great, and desirable at a time when so many irons are in the fire. I look forward, with the greatest confidence, that this simple method will become generally adopted when known, I might not have taken this liberty of addressing you, had I not seen that Mr. Beaton has taken no notice of anything of the kind; but if I can add the least mite to the stock of knowledge of that master of the flower garden, I do it with pleasure; for it is no more than I ought in return for the great benefit I have received from his writings.

GEO. GOODWIN,

Second Gardener to Geo. Thomas, Esq., Woodbridge, Suffolk.

[We have tried this mode and can add our testimony as to its efficiency. You need make no apology for sending such scraps of very useful knowledge, and the oftener they come the better we shall be pleased.—ED. C. G.]

ARTIFICIAL SWARMS.

I HAVE been much interested in perusing the various letters which a "Country Curate" has furnished to your valuable periodical. His plan of saving the lives of bees, by putting those from two stocks into an empty hive, I have tried with success. On the 7th August, two were driven into one hive, fed, and at the end of three weeks weighed 22 lbs. On the 6th September, the bees from three stocks were placed in another empty hive, fed, and in five weeks weighed 19 lbs.; both are now doing well. To convince an old Bee master of the practicability of the plan, and the advantage of feeding on the top of the hive, I placed this last-named hive in his garden, provided him with the requisite food, and promised him 2s. 6d. for his trouble, if the bees lived through the winter. He told me yesterday, that he saw, a few days previously, bees loaded with farina. One hive I have now under ground, the bees in which are evidently alive, as I can hear them distinctly through the tube. You will agree with me in thinking that I have not had much

experience in bee-keeping *generally*, when I remark, that I was induced to commence only last March. I can, however, speak with some degree of confidence in reference to the removal of bees by fumigation. Last summer I tried it in seventeen cases, and succeeded in all but the first, to the perfect satisfaction of numerous spectators as well as old bee-masters, who stood amazed to see that accomplished which they had so often stated *could not* be done. A "Country Curate" disapproves of the plan. I prefer it as being more easy, safe, and expeditious than driving. Two stocks I drove, but after a good deal of rapping did not succeed in removing all the bees, and was obliged to use smoke to get the remainder out. More bees were lost in this instance than in any of those by fumigation. In the sixteen cases together, I do not think 1000 bees were lost; in some instances, scarcely a score, and in one case only did I or my assistant get stung, though we generally went to work unprotected, except with gloves. I write to encourage other young bee-keepers to adopt the plan, assuring them the most timid may do so with complete success. I have had to encounter old hives, broken floor boards, and almost every inconvenience, and have succeeded sufficiently well to induce even a bee-keeper of forty years standing to promise to adopt it the coming season. The articles I provide myself with are, wet cloths to keep the hive tight; fungus; a lamp *rivetted*; a pair of bellows; a cigar to keep the bees, if any chance to be about, from my face; a pair of gloves; a light tub, about four inches deep and twelve inches in diameter, with a broad rim level with the top; a piece of pierced zinc to tack on to keep the bees in the tub; a wing or two to sweep the bees from the board and comb; a little sugared ale to rub through the zinc, to keep the bees quiet as they revive and reconcile those to whom they are to be united; a small bottle of liquor potassæ, to apply immediately to stings, if required. As soon as I get the bees home, after carrying them often six or seven miles, I place the hive to which they are to be united upon the rim of the tub; draw away the zinc, and on the following morning, the bees thus united are placed upon their old stand.

The first hive alluded to consumed in three weeks, 10½ quarts of food; the second 19 lbs. liquid sugar, and 3 lbs. of honey in five weeks.

On the 4th of October, I was asked to take the bees from a cast, and having no hive requiring any addition, I placed them, about a 1000, in a small box, nine inches square by six inches deep, with two windows. In it I fixed, as well as I could, several combs which, as they gave way, the bees soon effectually secured. I fed them as long as they would eat. They weighed in addition to the comb, bees, &c., on the 1st of December, 3¼ lbs.; on the 1st of January, 2½ lbs.; on the 30th of January 1¾ lbs.: how should I act with them? I thought of putting them on a 12-inch hive and letting them work through it. I intend to begin feeding them and my other seven stocks about the 15th February. In what quantity should food be given? Is there not fear of stimulating them too early? We may have much cold yet.

I have been told to-day by a bee-keeper, that drones seen after Michaelmas are a sure sign that the bees of the hive to which they belong will die. Is this correct, if so how is it to be accounted for? B. B.

[Place your box of nine inches square upon the top of a 12-inch hive, as you propose, and let the bees work through it. Feed at the top of your hives; see a good sort of feeder in THE COTTAGE GARDENER, vol. 5, page 276. Fill the feeder, and as soon as emptied fill it again. There is no fear of stimulating the bees too early. You may go on to feed from the 15th of February. If drones are seen in a hive after Michaelmas, there is a great probability that the queen has died, and that the bees will either die or forsake the hive.]

CELERY CULTURE.

I send you the method of treating my celery, from the time I sow the seed to the time it is ready for table. I sow in pans, the latter end of February, covering the seed as lightly as possible with rich soil. About a week after the plants have made their appearance, I give them a little air in the day time, to prevent the seedlings being drawn. When they have been in their second leaf fourteen days, I prepare my frames for transplanting, by filling them with new stable litter, which I cover with three inches of rich soil, and when it is nearly the same heat as the frames of the seed-bed, I begin planting. After the plants have thus been transplanted about a week, I give them air in the day time, and a little water occasionally, till they have commenced growing nicely.

When I prepare for planting out, I dig my trench eighteen inches deep, and thirty-six inches wide, and into this put fifteen inches of new manure, stable litter, pig dung, and shambles manure, mixed with bone or horn dust, which I cover in with three inches of rich soil—mixing the soil amongst the manure about six inches deep. When I put the plants in the trench, I have a basket of rich soil; and make a hole a little larger than the root of the plant, into which I put some soot, so that the root will not touch the manure. I plant out about the middle of May, setting the plants from twelve to eighteen inches apart. They want a good supply of clean water. I begin earthing when the plants are twenty inches high, adding a little earthing once a fortnight, and leaving it slanting towards the edge of the trench, that the water may not touch the stems, as it causes them to rot. My reason for digging the trench so wide is, because I sow small seeds—such as *cauliflower*, *savoy*, or *lettuce*—and get fine plants from them. I forgot to say, that I tie a string loosely round the celery, to preserve them from being broken by the wind: by this plan they will not want so much liquid manure. Mr. George Marsden, of the British Lion, Thomas-street, Sheffield, has grown ten plants of my *Champion celery*, which averaged six pounds and a half in weight.—JOHN NUTT, *near St. John's Church, Sheffield Park.*

GARDEN MAKE-SHIFTS.

UNDOUBTEDLY, many readers of THE COTTAGE GARDENER, cottagers especially, are annoyed by having their rows of *parsley*, and their choice *pinks*, eaten off by *game;* to those who can afford the outlay, wire protectors are the most sightly; but those who cannot, may effectually guard their choice things, by a few strait rods and brambles, provided they possess the smallest degree of ingenuity.

Take a strong osier, and form a hoop, then take three others, not so strong, tie one end of each firmly to the hoop, at equal distances, by means of small yellow osiers (Saliz vitellina), as these are the toughest, and, at the same time, neatest looking of all the osiers; bend them over to the opposite side, and there fasten them in the same manner, they will then form a half sphere; then take a long bramble and bind it round the frame work; tie at each angle with osiers; and you have a guard for pinks, or other single plants; but for a row of parsley, the form must be varied—take three strait rods, one inch in diameter, and form these into a triangle, like the roof of a building, by strong braces at equal distances; then cut brambles into lengths according to the height of your frame, fasten these obliquely on to the frame, and tie firmly at each angle. These osiers, however, will not bear tying in knots like string, but must be tied as when used for espaliers, raspberry canes, &c., for which purpose they are far preferable to string, being cheaper, neater, and quicker to use. In using osiers then, both for this, and also for espaliers, place yourself on the side least exposed to view, take the osier in the right hand, large end foremost, thrust it under the branch, and on the right hand side of the upright, bring the end over the branch, with the left hand, and place it across the small end (still held firmly by the right hand), and with the thumb and forefinger of the right hand, give it two twists round, and stitch over the end, between the branch and stake. For durability—they surpass string of any kind; and are excellent for nailing pears, plums, &c., where large clumsy shreds would otherwise be required. H. H.

FERNS FROM SEEDS.

I OBSERVE, with much pleasure, that you are directing the attention of your readers to the cultivation of that beautiful tribe of plants, the ferns. Perhaps it may interest some of your readers, to know how easily ferns are

raised from seed, and that any one may have a good collection in a short time, if they can procure seeds, even from dried specimens.

I have, at present, above twenty good plants of different kinds, raised from seed; the seeds kindly given to me by friends, from their dried specimens, from New Zealand, the Cape of Good Hope, and Madeira, and a very great number growing, but still too young to be named. Some of these plants are from seeds taken from specimens which had been *eight and ten years dried*.

At one time, I thought that old seeds were longer coming up than fresh seeds, but greater experience leads me to think that is not the case. Lately, I sowed some seeds of the Lastrea Multiflora, from specimens dried two years and a half ago, and they have come up in less than *six weeks*; before this I had not seen *fresh* seeds come up under *three months*. Some seeds, having had exactly the same treatment as those that are now grown to be good plants, are only now coming up, after being in the ground *four years and a half!*

The plan I have followed for raising ferns from seed, is sowing the seeds in a saucer (or small *pan*, perhaps, is the proper gardener's term), sprinkling a very little soil over them, and putting this saucer in a larger one, which is always kept filled with water, so as to keep the earth in the inner vessel always moist. It is better to have a hand-glass over the seeds, but not necessary. In this way, I have reared almost all the ferns I have, most of them in a room with a south exposure, and in winter where there was always a fire.

My ferns had grown so much, that this autumn a house was built for them, and it is in this house that the seeds have come up so quickly, in consequence, I suppose, of the warm, moist, and equal temperature they now enjoy. The plants and seeds are all plunged in sand, which is kept damp, and slightly warm by a flue below.

If any of your readers (should you think this notice deserving a place in your "COTTAGE GARDENER") wish for more information, about the cultivation of ferns from seed, I shall be happy to give all I can, but I am only

AN AMATEUR, AND LOVER OF FERNS.

THE GREEN FLY.

THE season is now approaching, when the green fly will (if not prevented) be very infestive. My mode, and one quite successful, is this:—Heat a plate of iron, *red hot*, then place a quantity of true Cayenne pepper upon it, and close the house. I find that the pepper does not injure even the most tender plant; it keeps my house quite free, and I believe, destroys slugs also. Many of the readers of THE COTTAGE GARDENER, will be glad of this *certain* remedy.—L. FISH, *Blackburn*.

TO CORRESPONDENTS.

VERBENAS FOR EXHIBITION (*West Kenter*).—Your question is rather a large one; and, to answer it fully, would take up too much space. We can only give you general hints. You ask for the best soil and situation for verbenas intended for exhibition, but you do not state whether you intend to exhibit them in pots or in cut blooms. We will, as briefly (to be useful) as possible, describe the culture of both, and, for more information, we must refer you to previous pages of THE COTTAGE GARDENER. *Soil*—Very well decomposed manure, one half; good yellow loam, one quarter; sandy peat, one quarter; as much sand as will give the whole a sandy character, and a small portion of charcoal in very small pieces. This compost is suitable for plants in pots. In beds, considerably less manure will be desirable. *Culture*—Procure young plants early in March; you will receive them in small 60s. Pot them immediately into 4½-inch pots, and place them as near the glass as possible, and give water as they require. Never allow them to flag. Smoke frequently with tobacco, to destroy the green fly, which is the worst enemy the verbena has to contend with. Stop them as soon as the shoots have made four inches growth. This will make them bushy. In April, pot them into 8-inch pots; or, if larger plants are required, you may put three plants of a kind into 11-inch pots. Stop them again, and allow no blooms to appear, till six or seven weeks previously to the day of exhibition. Train your plants to a flat trellis, one and a half feet wide. When your plants show bloom, you may, with advantage, give them, once a-week, a watering with weak liquid-manure. If hot weather, shade from ten to three, and give plenty of air. By closely attending to the above points, you will have a splendid lot of plants for show. In beds out of doors, tie the trusses, intended for exhibition, to stout sticks, and contrive a covering with a bell-glass, at three inches distant from the truss. This will keep them from wet, and bring out bright colours. Should the green fly appear, dust it with Scotch snuff, and wash it off when the insects are dead. Trusses intended for exhibition in pans of twelve or twenty-four, should be protected about ten days before the show day, and should be beginning to open before they are covered. *Varieties*—The following will be a good selection to begin with:—*Gem of the West, Vulcan superb, Magnificus, Iphegenia, Princess Alice, Standard of Perfection, Clotilde, Tommy, St. Margaret, Anacreon, Henrietta, Remarkable, General Brea, Ariadne, Emperor of China, Celestina, Madame Gournay, Magnificent, Mrs. Mills, Euphrasie, Sir S. Blane, Napoleon Bounaparte*, and *Bicolor grandiflora*. Verbena *chamædrifolia* was the first and original species, from which all the varieties now in our garden have been originated. It was introduced from Buenos Ayres in 1827.

DAHLIAS (*D. D. Dobbs*).—The fresh ground you intend to plant with dahlias, should be immediately trenched, turning the green turf down to the bottom, and covering the surface, after trenching, with three inches of good rotten dung, digging it in immediately, and, in three weeks, again mixing the dung well with the top spit. When your dahlias are a foot or eighteen inches high, cover the surface all round each plant with a mulching of littery stable-dung. This will protect the roots from drought, and the rains will wash down the nourishing constituents of the manure. Your collection is a pretty good one. The following will be useful additions:—*Andromeda, Charles Turner, Miss Vyse, Toison d'Or, Louis Philippe, Scarlet Gem* (1s each); and of fancy varieties—*General Carnignac, Unique*, and *Roi du Points*.

CYCLAMEN BLOOMS DYING (*T. F.*).—Your note came to us, but no specimen. You ask the cause of your cyclamens dying off? How can we tell without knowing how you have treated them since they bloomed last year. Write again, and state full particulars of the soil you grow them in: how you kept them during the summer, autumn, and winter; and how, and to what extent, you watered them, and then, perhaps, we shall be able to tell you the cause of their blooms dropping.

HYACINTH GLASSES, &c. (*J. P. M. F.*).—We are not aware of any use to which hyacinth glasses can be applied, after the hyacinths are over; annuals will not do any good in them. Put three or four spadesful of the half rotten dung to each of the *roses* on your poor soil, and slightly fork it over with the soil. Your *Jacobæa lillies* will not flower, if left always out of doors; they ought to be taken up in October or November, dried for the winter, potted at the end of March, and kept in a frame or greenhouse till they flower, and then planted out in May. If flowers do not appear by the time the leaves are four or five inches long, they will not flower that season.

CONCRETE WALKS (*T. M. G.*).—Chalk is certainly the cheapest thing to bind the rough stones, it must be in very small pieces, and if in powder all the better; enough to fill up the rough surface will do. Roll this till you get an even surface, then put on small gravel mixed with one-tenth part of lime, roll this also, and finish with a slight coat of gravel, enough to hide the colour of the lime.

SCARLET RHODODENDRONS (*Ibid*).—The hardy sorts will answer for your bog-bed certainly; tell the nurseryman how you mean to plant, and he will give you the proper kinds.

SHRUBS (*Ibid*).—Your selection of shrubs includes the grandest trees in the world, for our climate. That of which you forgot the name, is *Auracaria imbricata*. Unless you take the *Cedar of Lebanon*, or the *Mount Atlas Cedar*, the *Douglass Fir* would be the next best match for those you propose planting. Tell all this to the rhododendron man, and he will put you right. Avoid plants in pots; get them rather from the open ground. We shall soon have something to say about many fine new trees and shrubs.

ANNUALS (*C. T. L.*).—Sow the annuals you name about the end of March or before the middle of April.

SWEET-SCENTED FLOWERS (*Ibid*).—You want a list of the less common sweet-scented flowers. There is nothing new that way, if you mean hardy plants.

DISEASE OF HEATHS (*A Lover of Ferns*).—There is neither cure nor accounting for the disease which kills, suddenly, *Heaths, Epacrises, &c.*, unless it be that the centre of the ball is so hard, that water cannot reach it, or the collar of the plant gets too much wet. *Tamarix gallica* does make a good fence near the sea.

FLOWER-GARDEN (*Ibid*).—We are compelled to put off these till next autumn; but we have glanced at your plan, and we must say we like your arrangements very well indeed, and also the shapes of your beds; we see nothing which wants altering, and we quite admire your splendid Scarlet geraniums, from six to ten feet high; we never saw them so well managed.

PROPAGATING MAGNOLIA GRANDIFLORA (*Peter*).—You may follow Mrs. Loudon's plan of increasing your Magnolia grandiflora by circumposition, and the month of April is the right time to attempt it. When the branch has made roots into the divided pot, you may cut off the shoot from the tree, place it in a shady place till more roots are made, and then your young plant is safe; but if you can bring a branch down to the soil, and can tongue it as you would a carnation layer, covering the tongued part with earth, and laying a small stone upon the earth, you would obtain a plant more easily, and more certainly. *Magnolia purpurea* is always, and readily, too, increased by layers, and is frequently used as a stock for M. conspicua.

OAL DRAINAGE (*C. P.*).—It is quite impossible that charcoal if used in lumps so that the superfluous water could easily 'as the cause of your plants sickening and dying. Be assured inage was imperfect, or there was some other cause for the uite independent of the charcoal. This has been used by the leners for every species of potted plants, and without injury.

T FOR ZINC AND GLASS (*W. J. M.*).—Our correspondent a cement, or glue, suitable for uniting lapped joints of zinc and as to resist the continual action of hot water. Can any reader recipe for such a cement?

ED HONEY (*C. A.*).—To use the candied honey as a food for s, put a pound of it into a saucer, with a quarter of a pint of id let it simmer over a slow fire for five minutes; the crystals be dissolved, and when cold will be in a very proper state to your bees. The price of *Payne's Improved Cottage Hive*, is the small depriving hive, 1s. 2d. Mr. Payne will have you if you write to him.

SED CUCUMBER LEAVES (*A Constant Subscriber*).—They are hot and too dry, consequently are attacked by the *thrip*, and by the *red spider*; paint the inside of the frame with a mixture ir and clay water; and keep the air more moist.

SED CAMELLIA LEAVES (*A Constant Subscriber*).—The brown on them are caused by drops of water upon them, and the sun upon them whilst the house is closed—or as gardeners term it, *scalded*. The buds probably fall because there is a deficient f water and warmth to the roots proportionate to the warmth ture of the air.

SH HEN'S EGGS.—A correspondent near Derby, wishes for some e;" and another in Cheshire requires some "fowls of the *Cochin-China breed*, or a few of their eggs."

CHARCOAL.—A correspondent (*W. C. G.*) says that he has just one and a half ton from Dublin, at 47s. per ton, including sacks. ght to Liverpool being 4s. per ton additional.

LOTUS LEUCANTHA.—*R. A.* wishes to be informed where he can seeds of this bee flower. It is a white-flowered Trefoil-like t at all ornamental.

MN-BEARING RASPBERRIES (*J. M. G.*).—There is only one sort, alled the Double-bearing, the Siberian, and the Late. It may ied of any nurseryman who advertizes in our columns. You will ections for its culture at page 259, and other parts of our first

T GLUTEN (*Pyrus*).—This is the remainder after washing from our all its starch. This gluten mixed with salt has become nd unfit for use in your business, and you ask if it can be em- s a manure? Certainly, and you will find it a very powerful fer- Now that it has fermented, it mixes perfectly well with water, ay use it in that way, pouring it over ground about to be dug abbage tribe, or to your asparagus beds, but do not apply it to ers except your rose-trees.

TREES (*Ibid*).—Many of our finest new pears would *bear* as stan- your climate (Stockport), but whether they would possess flavour, ther another affair. You have no alternative, as far as we can see, it them back, and graft them with kinds which will withstand ate, and tend to produce a succession. Try to get *Beurre Diel* er); *Dunmore* (October); *Hacon's Incomparable* (December); *mne of Jersey* (November); *Thompson's* (November, December) *orceau* (December); *Beurre Langelier* (January). These will gh for you for ordinary standards; if your case had been a wall, d have advised somewhat different. See some remarks in our cle to-day, as to grafting old trees.

F APPLES AND PEARS (*J. L.*).—Twelve *dwarf standard apple-* s follows:—Ribston Pippin, Margille, Pitmaston Nonpariel, obey Pearmain, Kerry Pippin, Pearson's Plate, Ashmead Kernel, Pippin, Boston Russet, Golden Reinette, Ross' Nonpariel, Red g. Six *pears*:—Jargonelle, Dunmore, Louis Bonne of Jersey, uise, Beurré Diel, Glout Morceau. Plant your apples sixteen your pears twelve feet apart. Your soil, by your description, is ible; pray do not put much manure in, especially for the pears.

NDER NOT FLOWERING (*A Subscriber*).—If your greenhouse is s time enough for it yet to show flower. If it, by-and-by, does , you must not have exposed the shoots sufficiently to light and eason. As the plant is too large for your house, your only remedy giving a little more patience, to prune it back, and keep it rather afterwards, encouraging it with plenty of manure water, shifting ssary, into fresh rich soil, and getting it full in the sun, first in e, and for a short time out of doors, before housing it in the

Next season you will have flowers from the points of the shoots this.

INGS OF ACHIMENES, GLOXINIA, AND GESNERA (*D. J. M.*).— g will it be before they bloom—depends upon treatment; generally to two years. We have had plenty during the winter, and still ity of bloom, and we believe with good treatment would have flowers all the season from Gloxinia plants, the seed of which in the spring of 1850.

Y AUTUMN FLOWERING HERBACEOUS PLANTS (*Ibid*).—These numerous to be enumerated; we should fix upon the *Phloxes*, hich are beautiful things; then the hardy *Asters*, and *Solidagos*. will continue until late, if they are prevented *seeding*. For striking effect, few things would equal the hardy *Gladioluses*, such as *Pecittacinus*, *Gandavensis*, &c., but they are all bulbs.

APHELEXIS (*Ibid*).—We should consider the kinds you mention as varieties, but should not like authoritatively to say that they are not species, as the distinction is easily seen; it is a matter of little practical importance whether you consider them species or varieties.

MAKING A HOTBED BETWEEN BRICK WALLS (*H.*).—We presume you mean putting your fermenting material into what is technically termed a brick pit, for this purpose your material must be as well prepared as for any other mode of making a bed; if for purposes that will admit of *turning*, the freshest or best prepared may be put at the bottom, and thus less material will be necessary to insure a certain degree of heat. If we do not meet your case, explain your wants and wishes more fully.

FORCING VINES, AND GROWING GERANIUMS (*T. R. Lucas*).—We presume that you have vines up the rafters, and geraniums on a stage. The geraniums have been kept hardy, are starting into growth, and you wish to know whether you should repot them, or wait until they have done flowering. Now, first, if you force your vines much, your house will soon be too hot for your geraniums, if florists' kinds, unless you could remove them altogether, when your temperature at night exceeded 55°. Secondly. If you wish for early blooming in April and May, neither stop the shoots, nor fresh pot; but as your temperature advances, and especially as the flower-buds begin to appear, use manure water, but not before. Thirdly. If you wish summer-blooming large plants, stop rampant shoots, encourage them to break afresh, tie out the shoots, and when the pots are filled with roots repot again. By one lot succeeding each other, you may have flowers until autumn; but recollect your geraniums will not do well in your house, when after *forcing* the roof gets covered with foliage. There is an article to-day by Mr. Fish, that will suit you, as respects potting.

CANNABIS SATIVA FOR FUMIGATING (*Ibid*).—We think you must mean *C. indica*; but at this moment we cannot refer to the page you mention. Both are annuals, that merely require to be sown in common soil. *Haricot Bean.*—This is nothing but a variety of the Kidney bean in its dwarf state (*Phaseolus vulgaris*), and in its rambling condition of scarlet and white Dutch runner (*Phaseolus ramosus*), which will soon reach the height you mention, though by stopping they may be successfully cultivated as dwarfs. Their culture has often been given. White seeds are most esteemed as Haricots.

SPARMANNIA AFRICANA (*Amateur*).—You ask, how to make it bloom more freely in a greenhouse? This, though rather rough-looking, is an old favourite of ours, which we have not lately seen—its blossoms being useful in spring and winter for little bouquets. When done flowering, or nearly so, prune it into good shape, and give it a warm corner until it breaks, then encourage it to grow, by fresh potting and plenty of water during the summer; any quiet place out of doors will do. Get it supplied with as many stout, stubby, healthy, well-ripened shoots as possible. House it before frost, and abundance of bloom will crown your efforts.

POTTING (*Tiverton*).—See Mr. Fish's article to-day.

GAS LIME (*J. S.*).—You greatly err in considering that you can keep your land fertile by the aid of such applications as gas lime only. There must be an annual addition of animal or vegetable decomposing matters, to restore to the soil the carbonaceous matters taken from it by preceding crops. The sea-weed you mention will do excellently for this purpose, but we should not mix with it gas lime in a larger proportion than one cart load to five or six of sea-weed. Cinder ashes from the gas works are useless for mixing with land, unless this be very heavy.

JERSEY COWS (*Utile et dulce*).—They are usually white and brown, the first colour prevailing. They will thrive with you in North Devon, with only ordinary care and feeding. We shall best answer your wish by thus announcing that you are desirous of purchasing two, and would be glad to hear of any one who will deliver them, having their first or second calf by their sides, all of the real Jersey breed, at your residence, and for what sum. They could come by steamer to Southampton. Will some of our Jersey readers oblige us with some information on these points.

ASPARAGUS BEDS (*J. H.*).—If you will refer to vol. i., page 113, and to vol. iv., page 51, you will find full directions for making these. If you trench your ground three feet deep, mixing abundance of rich manure (you cannot put too much), throughout that depth, you will have a good soil for the bed. As your soil is stiff, it will be an improvement to mix fine coal-ashes and sifted bricklayer's rubbish with it, as you trench in the manure. You can obtain three year old plants of any of the nurserymen who advertise in our columns.

SOFT CLAY SOIL (*Rusticus*).—This is a bad soil for your parsonage garden, and the worst of all possible plans for planting it, is that which you have adopted, of having holes dug in it for your shrubs, and filling the holes with good soil; they will act like so many wells, into which to drain the water from the clay and chill the roots. You had better mix your better soil with a little of the surface of the clay, and plant in stations upon the surface, mulching over the roots, to keep them moist in the spring and summer. If you have chalk, coal-ashes, bricklayer's rubbish, drift-sand, and such like opening materials at command, you cannot have them trenched into your ground too abundantly; but, above all, and before all, *drain* your garden. We are glad you have succeeded in obtaining a *bright scarlet* thorn.

CALLA ÆTHIOPICA (*A Window Gardener*).—You may remove the suckers from this at once. You cannot supply it with too much water;

Last summer we saw many of them growing in a rapidly running stream, into which their pots had been lowered, and very beautiful objects they were. Tepid water is best for the *Oleander*, and remember that you cannot well supply it too abundantly with moisture. See Mr. Beaton's directions in former volumes. *Celery plants* raised last autumn, are not available for planting next season. If they do not run early to seed, they come within the rule, that a celery plant once stunted never regains a vigorous growth.

SUNFLOWER SEED (*Junet W.*).—We believe, to have the produce ripen thoroughly, the seeds should be sown at the end of March in a slight hotbed, keeping the seedlings growing freely, but with plenty of air, until the middle of May, then to be planted out in rows four feet apart, and three feet from plant to plant in the rows. Each plant should not be allowed to bear more than four heads. *Horse-radish* can only be extirpated by persevering in trenching out each plant as it appears above ground.

FEEDING BEES (*Brettingby Cottage*).—Arouse the bees in hive A, by letting a few drops of honey fall amongst the combs, and rubbing a little inside the tube of the feeder: do this upon a mild day. If hive B is tolerably heavy—say seven pounds of honey—begin to feed on the first of March; if less than seven pounds, begin now.

BEES, FOWLS, AND COWS (*Sigma*).—The brown-coloured drops about your hives are the excrements of your bees. Clean your floor-board frequently. Bees will die about the feeding-trough, and a jury of apiarians would return a verdict of "Died from natural causes." *Hens* cannot be kept either profitably or humanely in a small space under a net. Thanks for your hint about *Cows*. *Salt* is a good addition to a dunghill—adding to its value as a fertilizer—but it does not check its steaming. In valuing your crops, ask some farmer what is the value—this varies too much in different localities for us to give a specific answer. High keep is good, even for *Cows* in milk, but not to such an extent "as if you were fatting them for the butcher;" for what they gain in actual *fat* is lost from the pail. It is desirable to give a little hay and straw (cut into chaff, and mixed with steamed potatoes, is the best mode), to check the purgative consequences of a diet of green food.

FANCY PIGEONS (*Aldomasley*).—Our correspondent wishes for some Black Barbary, Trumpeters, and Spanish Runts. Have any of our readers these varieties to sell?

CAPE HEATHS (*D. Johnston*).—You will find a good essay on their culture, by Mr. Beaton, at page 26 of our second volume. Your money has been received;—thanks for your hints. We shall be glad of any scraps of gardening from you.

MANAGEMENT OF GREENHOUSE PLANTS (*J. M. F.*).—See an article by Mr. Fish, to-day, and he will endeavour farther to meet your wishes; there are, however, several points we will glance at now. First. *Bark for hotbed*.—This is what the tanner throws aside, when he has done with it. After it has been allowed to drain, and get thus a little dried, the sooner you can get it the better, and try and dry it more before you throw it together in a bed, and then the heat will not be so violent, but more continuous. Second. *Cuttings in bark-bed below a stage*.—Your box four feet by three, and three deep, will give ample heat for cuttings in such circumstances; but will you not be troubled with drip from plants in the stage; and will not the cuttings be too much shaded by the plants above? If you have a light for your box, or any contrivance to prevent drip, you may succeed with many things, provided you give them more light as soon as struck. It will do capitally for Dahlia roots, Achimenes, &c., by and by. You will see that Mr. Fish at this time scarcely uses any shade at all for his cuttings. Third. *Ammonia*, and other liquid-manure, should it not be given to flowering plants before the bloom-buds appear? See the article referred to to-day. Never give it when luxuriance would be purchased at the expense of blooming. In general circumstances, it is safest to refrain. Fourth. If air is requisite for plants, why not use wet soil? It would shrink, and leave a place for air all round the ball. Aye, that it would, and, therefore, we would not so use it at all, any more than we use that which is dusty dry; in the latter case there would be no wetting it easily; in your case the water would run off in the channel you made for the air; the ball would get as hard and as dry as a brick, and the plant, without the requisite remedy being applied, would soon be fit for the rubbish heap.

MUSK PLANT—*Mimulus moschatus*—(*Luculius*).—You truly say that "this is a universal favourite. It cheers the toil-worn artisan in the dusty factory, and the faint needle-worker in the murky garret. It is grown with a zest in the rich lady's boudoir, and in the labourer's cottage." And glad are we, that though your garden is confined to "beau-pots in a window," you have yet read every sentence of the Cottager, and made innumerable notes, and amplified indexes for your peculiar benefit, and felt that you were again among "fields and flowers, and groves and glades." Such testimony as yours, is more than a recompense for toil; and while hoping to have the benefit of some of your notes in future, we would try in a few words to satisfy the *lady* respecting her pet window plant. The Musk is a plant of the easiest cultivation, and perfectly hardy, unless in very damp clayey soil. Many people purchase it fresh every season, when if they only kept their pots, they would have enough to supply themselves, and their neighbours. If you have a strong pot early in the spring, cut it down when done flowering, and set it in a shady place, and it will bloom a second or third time the same season. Much of what is obtained early in London has been gently forced by the nurserymen. Such amateurs would sooner grow it themselves. Supposing then, that you placed your Musk pots last winter in the cellar, or any out of the way place; by this time they will be beginning to throw up little shoots, and if not, water the pot, and place it near the chimney for a short time, when the heat will cause growth to commence, and then you may remove it to the window. Keep some of your store old pots in the coolest place you can, and fresh pot them, or divide them, as a small piece of the roots, or rather underground stems, will soon fill a pot. By this means, and cutting down, resting, and bringing in again your earliest plants, you may have musk during the most of the season. Any light common soil will do, and while growing, plenty of water must be given.

BARK BED (*O. P.*).—See what has been said already. You may keep the best and roughest of the old, but do not mix it with the new—rather place it above it. It will answer perfectly for propagating verbenas, and starting achimenes, &c.; and it will not be too early, if you have means to harden off the one, and grow on the other. Without these means, you had better defer a few weeks. 2. You may repot and forward your bedding-out plants on the same principle. Your general stock of geraniums do not want such heat, unless you have a particular object in view. 3. Do not mix the exhausted bark for potting, it contains too much acid. 4. We think, that raising the chimney will be sure to increase the draught of the flue. Is the pipe large enough? Is the bottom of the furnace eighteen inches, or a foot, at least, below the bottom of the flue? Shall always be happy to serve you as far as we can.

NAMES OF PLANTS.—We must beg, that when specimens are sent to us to discover the name, that a sprig bearing a flower may be sent us if possible. A fragment of a leaf is often all that we receive. (*S. F. S.*).—Yours is *Piptanthus nepalensis*. It is a hardy deciduous shrub, and grew well against an open wall in Winchester. (*R. D. L.*).—1. Lechenaultia formosa. 2. Diosma capitata (?) 3. May be *Cucalia kleinia*, but it is impossible to tell that, or 4, from a fragment of broken leaf.

CALENDAR FOR MARCH.

ORCHID HOUSE.

As the sun obtains power, AIR may be given pretty freely, when the out of doors is mild and the sun shining brightly. BLOCKS: plants on these should now be renewed; raise the living roots carefully with a thin bladed knife, and if the plants require new or larger blocks, fasten them to them with zinc wire—it is softer to the plants than copper. To such as require moss, add some that is living and green, as it looks neater and more natural. BASKETS will now require dipping two or three times during the month. CATASETUMS and CYCNOCHES will now be growing, and if not potted last month, this must now be done. COCKROACHES: wherever these insects abound, there is great danger that young roots (which are now beginning to put forth, and which tender food just suits them) will be eaten just at the end, thus stopping their growth and the means of feeding the plants. The following we can warrant as a certain destruction to them:—Melt a tallow candle, and mix it with arsenic, and when cold lay it in small portions, upon pieces of wood, in the places where they abound. The cockroaches will greedily devour it, and it is certain death to them. DENDROBIUMS will now be showing flower and growth. They should be placed in the warmest part of the house, and should be watered and syringed moderately to encourage growth. MOISTURE IN THE AIR, give plentifully, by wetting the pipes and walks frequently, especially in sunny weather. POTTING: continue using peat, chopped sphagnum, broken potsherds, and charcoal. In potting, or even basketing, AERIDES, and plants of similar character, use only sphagnum, without chopping it. SHADES prepare, so as to be in readiness for bright sunshiny days, which may come towards the middle and end of the month. WATER, use moderately to all plants starting into growth. Now is a good time to WRITE TO CORRESPONDENTS abroad, to send home these plants; they will then arrive in time to grow a little before the winter sets in.

T. APPLEBY.

PLANT STOVE.

AIR, give freely from 10 to 3. ACHIMENES: pot another batch; divide and repot those growing; increase new ones by cuttings of the tops, or divide the scaly bulbs into short lengths. APHELANDRA CRISTATA and AURANTIACA pot, and plunge in bark bed, to encourage rapid growth. CLERODENDRUM FALLAX, and similar species, pot liberally in rich soil to flower in July; nip off the tops to cause branches. CREEPERS: attend to their training once a week. GESNERAS, GLOXINIAS, and GARDENIAS, continue potting. HEDYCHIUM repot. IXORAS pot; train out, so as to make bushy plants; place in a frame heated with dung, to encourage free growth. AIR MOISTURE: to cause this, wet the flues, pipes, walks, and walls, thoroughly, when the sun shines. PROPAGATE all kinds of stove plants during this and the next month. SHADE from bright sun during the four middle hours of the day. WATER will be required liberally both at the root and the top with the syringe. CLEANLINESS: in every part of the house keep all clean; let no decaying leaves be seen; sponge the leaves whenever they are dirty, or the red spider appears. Close attention to cleanliness, will insure bright coloured foliage and that healthy appearance which is so pleasing to the eye and assistant to the plant.

T. APPLEBY.

FLORIST'S FLOWERS.

AURICULAS and POLYANTHUSES finish top-dressing early in the month. CARNATIONS and PICOTEES water freely, and expose fully on all favourable occasions. CINERARIAS repot, and keep in cold frames close to the glass; water freely, and protect securely from frost. DAH-

ll kinds intended for propagation, should now be put into heat. seed in heat last month, will now be starting into growth. Cut oung tops when three inches long, and put into sand in heat and FUCHSIAS start in gentle heat, and propagate by very young i sand, in heat and shade. PINKS see to, and if the frost has the soil, press it to the plants again firmly with the fingers. s peg down to the soil, and layer the long shoots, which will em to put out fresh roots and greatly encourage fine flowering. or exhibition, water with liquid manure, and bring into a green- r deep pit, in succession. SHELTER, give particularly now in eather, as the spring shoots are very tender and liable to damage lden changes. TULIPS: these more particularly must now be to, to prevent wet and frost from stagnating their growth.

T. APPLEBY.

FLOWER-GARDEN.

ALS (Tender), such as the Portulacas, Mesembryanthemums, , &c., sow, b.; (Hardy), sow on dry borders, b. and e. ALS, sow, e. CUTTINGS, push on the propagation of cuttings, splant them as far as they root. DAHLIAS, sow, and force old stock, b. DRESS every part within the boundary as early as you DGINGS of all sorts finish off as early as possible. All EVER- transplanted since last August, may have liquid-manure this and throughout the season after this mild winter. FLOWERS, plants you want cuttings from, b. Finish all the PLANT- SPRING PRUNING of trees and shrubs, and all necessary as as soon as the weather will permit. GRASS and CLOVER w with a liberal hand over patchy grass: keep the grass in m order, and roll it three times this month, and oftener if you RAVEL, clean, roll, and relay. HAND-GLASSES, the best of all ar half-hardy, and such other annuals as come up weakly at first, m on a warm sheltered aspect. HOEING: never hoe a border in or fear of killing something which you cannot yet see. HOTBEDS good helps to those who can well manage them for the flower- keep them up to 70°, and steady. HYACINTHS and other BULBS; s they appear, stir the beds and lighten the soil round the plants; t spring GLADIOLI at once. PERENNIALS, with the exception of ly rooted ones, ought to be removed—divided, if necessary—and me fresh soil, or be planted in new situations at least every son; see to this rule, and treat one-third of each family, every or March, according to it. PROTECTION is necessary for almost things of a tender nature, this month. RAKES: lock them up, ur man cannot dress a border without a rake, pity him. ROSES aning, b., except, perhaps, a few strong ones be left unpruned to bloom later; but this plan is radically bad, and not necessary our perpetuals. SEEDS, do not sow a packet of rare seeds in ally, sow in two or three pots to provide against accident to one. GS, in heat transplant as soon as you can handle them. STAKES: have a stock on hand for your dahlias, hollyhocks, and all other quiring them next summer, and see that all the old ties and kes are out of the rosary. SWEET BRIAR, sown in a single row, and make a hedge in such poor soil, as would kill other roses.

D. BEATON.

FRUIT-GARDEN.

TS, prune, if before neglected, b.; young ones, head down; r eggs of Red Bar moth. APPLES, dress for blight. BLOSSOMS ruit, protect. CURRANTS, finish planting and pruning, b. RS, generally finish regulating, b. FIGS, plant; make layers; tings. FORK OVER the borders and quarters, if before omitted. RRIES, prune, if before neglected, b.; finish planting, b. G, in mild weather, is best done in this month. SCIONS, pre- ARING cannot be done too often. MULCH round the trees anted, to keep the roots moist. MEDLARS, MULBERRIES, and NES, neglected before, prune, b.; young, head down. PEARS, prune and train. PEACHES and NECTARINES, apply sulphur o. PLANTING, omitted, complete, b. (See Feb.) PRUNING, in complete without fail, b. RASPBERRIES, finish planting, b. UNE, where omitted, b. STRAWBERRIES, finish dressing, b.; *ome* runners. STANDARD ORCHARD-TREES, finish pruning, b. s, for stocks, may be planted (See Feb.). SUPPORT, with stakes, ly-planted. STOCKS, raise from seeds of apples, pears, quinces, ars. TRENCH, &c., ground for planting. TRELLISED FRUITS, otect. VINES, finish pruning without fail, b.; plant cuttings, layers.

fting, commence with plums and cherries; but scions on the inserted on large trees, seldom succeed. Loose branches, and s shoots of pears and other fruit-trees, trained as *pyramidals*, their proper positions.

R. ERRINGTON.

FRUIT FORCING.

dmit freely. APHIDES, destroy in all forcing structures by n or tobacco liquor. CHERRIES ripening require abundance of ittle water. Forward CUCUMBERS, whether for boxes or frames. clean by the sponge and syringe. PINES require more water ter heat; syringe occasionally; give liquid manure; shift into ts. PEACHES, thin; the day temperature for them should not 0°, with plenty of air; disbud; trim; water freely. STRAW- , in pots, continue successions. TEMPERATURE for pines about 85° with sun, and during night 60°. SULPHUR, apply and pipes, to destroy red spider. TOBACCO fumigations, con- VINES are now all in motion; thin; stop; train; keep well with liquid manure; air, keep moist, except to those in use sulphur, or the mildew may visit you; temperature as h. MELONS, provide succession.

R. ERRINGTON.

GREENHOUSE.

AIR, admit in fine weather, when the outside temperature is above 35°; a shut house is better than cold currents and night fires; in foggy weather, however, light a fire, to clear and dry the atmosphere. BULBS and TUBEROUS roots, introduce, and water more freely; start the various kinds of Achimenes, Gesnera, and Gloxinia, in hotbed; seeds of the latter, sown now, will give nice little flowering plants for the autumn and winter, if you can give them heat. CALCEOLARIAS and CINERARIAS, water more freely; give manure water to those flowering and showing their flower-stalks; shade in sunny weather; shift for succession. CAMELLIAS and AZALEAS, water more plentifully when in bloom; keep those intended for late blooming as cool and shaded as possible, so that frost does not injure them. DIOSMA, EPACRIS, HEATHS, give abundance of air when growing and flowering; PRUNE freely when done flowering, and keep close until they begin to grow, when the roots had better be examined. HOTBEDS, prepare for sowing Primula seeds, and any other desirable greenhouse plants, raising cuttings, sowing seeds, or striking cuttings of the commoner sorts for stocks, on which to inarch or graft Correas, Oranges, Camellias, &c; the grafting of such plants is easily effected in such a sweet moist hotbed, and does away with much of the trouble of inarching. Such a bed will, also, be necessary for starting Cockscombs and Balsams, &c. INSECTS, destroy. LEAVES and STEMS, clean; a little soap in the water is a great auxiliary for removing all kinds of filth; syringe with clean water afterwards. LILIES, JAPAN: after the stems appear, place in a light, airy situation. MIGNONETTE, and tender annuals, sow in slight hotbed, to be afterwards hardened off. SOIL, prepare; turn; and expose for a general shifting about the end of the month; but do not knock about fresh soil intended for potting, so as to shake the fibre out of it. TRAIN large plants of Pelargoniums, intended for early flowering; STOP those for late summer and autumn. Scarlet Geraniums, intended for specimens in pots, give good shifts to, and if they can get a little bottom-heat, they will come all the stronger and bloom the finer. Tie CLIMBERS to rafters, after duly pruning them, keeping in mind whether the flowers are produced on young or old wood; train those daily on trellises; and, as the season is now getting on, let neatness, order, and cleanliness, everywhere prevail.

R. FISH.

KITCHEN GARDEN.

This is a busy month; every day brings its work; a favourable opportunity should never be lost for doing any particular kind of work; take advantage of open mild weather for every kind of planting; in taking up transplanted plants from nursery beds of any kind, or at any time, always lift them up with some kind of tool or other, as a transplanted plant always suffers so much more than a plant drawn from the seed-bed. ANGELICA, sow, or plant, e., autumn sown. ALEXANDERS, sow, m. or e. ASPARAGUS, sow or plant, e.; and dress off out-door beds; attend to that in forcing; water with liquid-manure once a week. ARTICHOKES and BALM, plant. BASIL, sow a little for early use. BEANS, plant; and earth-stir growing crops. BEET (Red), sow a little for early use. BORAGE, sow, and earth-stir autumn sown, and thin out. BORECOLE, sow, m. BROCOLI, sow a little of the early kinds, and mark any favourite kinds for seed. BURNET, plant or sow. CABBAGES. Any early kinds may be sown, or *Red Dutch*, should plants be wanted. CAPSICUMS, sow in hotbed, m. or e. CARDOONS, sow, e., for first crop. CARRAWAY, sow. CARROTS, sow for early crops; attend to thinning-out those in growth, and earth-stirring. CAULIFLOWERS, plant out the winter-protected; attend to spring-sown, as to airing, pricking out and earth-stirring; also assist the early hand-glass crop with soakings of liquid-manure, &c.; and sow in succession, e. CELERIAC, sow CELERY, sow main crop, m., and prick-out early-sown on gentle hotbed; leave for seed. CHAMOMILE, plant. CHERVIL, sow; save seed from autumn-sown. CHIVES, may be planted. CLARY, sow, e. CRESS (American), sow. COMPOSTS, prepare. CORIANDER, sow. CORN SALAD, sow. CUCUMBERS, ridge out; pot off; or sow in succession; attend to those in bearing; keep up a good moist heat. DILL, sow or plant. EARTH-STIRRING, attend to in all cases, and often. FENNELL, sow or plant. GARLIC, finish planting. HOEING, attend to in dry days. HOREHOUND, plant or sow. HORSE-RADISH, finish planting. HYSSOP, sow, or take up and divide old roots. JERUSALEM ARTICHOKES, finish planting. KIDNEY-BEANS, sow in succession; attend to those in bearing, assist them with liquid manure. LEEKS, sow. LETTUCES, sow; prick out; and plant out. MARIGOLD, sow. SWEET or KNOTTED MARJORAM, sow a little for early use. MARJORAM (Common Garden), divide and plant out. MELONS, sow in succession, and ridge out; attend to earthing-up, training, &c., the early crops. MINT, plant. MUSHROOM-BEDS, make, and attend to; assist old beds with a little tepid manure water. MUSTARD and CRESS, sow, once or twice a week. NASTURTIUMS, sow, e. ONIONS, sow the main crop; plant for seed, b.; also finish planting the *Underground* or *Potato Onion*; also the *Tree Onion*; and look over those in the store. ORACH, sow. PARSLEY, both kinds, sow. PARSNIPS, sow, b. PEAS, sow in succession; earth-stir, or earth-up, and attend to sticking, &c. PENNYROYAL, plant. POTATOES, finish planting, either in hotbed or open quarter, RADISHES, sow in succession; attend to thinning-out young crops. RAMPION, sow. RAPE, sow, *common*, and *edible-rooted*, e. RHUBARB, sow or plant, b. ROCHAMBOLE and ROSEMARY, plant. RUE, plant. SAGE, plant. SHALLOTS, finish planting. SALSAFY and SCORZONERA, sow a little for early use. SAVOYS, sow. SEAKALE, sow or plant out; attend to early covering-up, to exclude the light from the crowns, for successional and late crops. SKIRRETS, sow, e. SORREL, plant or sow. SPINACH, sow in succession. TANSY and TARRAGON, plant. THYME, sow or plant. TOMATOS, sow in hotbed, e. TURNIPS, make a small sowing two or three times during the month.

T. WEAVER.

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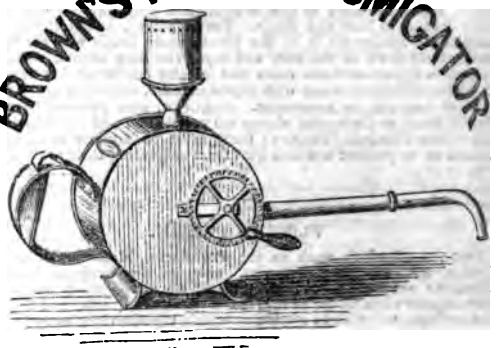

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WEEKLY CALENDAR.

MARCH 6—12, 1851.	Weather near London in 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Peacock Butterfly seen.	30.618—30.280	55—41	S.W.	—	37 a. 6	46 a. 5	9 24	3	11 35	65
Dog Violet blooms.	30.062—29.879	54—38	W.	0.06	35	48	10 33	4	11 21	66
Blood Worms in water.	29.918—29.810	49—23	N.W.	0 02	33	49	11 41	5	11 6	67
1 Sunday in Lent.	29.949—29.917	43—29	N.W.	0.01	31	51	morn.	6	10 51	68
Crow builds.	30.432—30.276	43—24	N.	—	28	53	0 50	●	10 36	69
Creeper's spring note heard.	30.424—30.271	46—36	W.	—	26	55	1 58	8	10 20	70
Ember Week. Ash flowers.	30.164—30.128	56—43	W.	—	24	56	3 2	9	10 4	71

long since, we had an inquiry from a gardener relative to the pro- management of fish-ponds, and we must confess, that down to e of that inquiry, we were ignorant that the attendance upon such es came within the catalogue of a gardener's duties. However, nd that it does, and our next inquiry was for information relative s little-studied, and too-much-neglected department of rural ıy. It so happened, that we opportunely became acquainted with eman—the only one we ever met with—practically acquainted with eding and fattening of fish in ponds, and he engaged to furnish us series of essays on the subject. But this exemplified another of ny slips between the pen and the press, for our piscatorial friend was ly included among the departures for Port Natal, and he is, per- ıow fishing for snappers off the coast of Africa, instead of writing s and tench for The Cottage Gardener. We then inquired for of authority upon the subject, and found that a thin volume was ublished by M. Boccius, but it offers nothing superior to a much uthority, the Rev. Charles Marshall, who, on more accounts ıe, deserves a notice in our pages.

n out-of-the-way district of Northamptonshire, difficult to be l, even in these days of locomotion, stands the village church of rth, and within it may be found a marble memorial bearing this tion :—

This Tablet
is affectionately dedicated by two surviving friends,
to the memory of
the Revd. Charles Marshall,
who for thirty-eight years filled the office of vicar
to this parish.
Diligent, temperate, and peaceful,
he gained the esteem of his parishioners,
and after a long period of affliction,
he sank to the grave, in hope of a joyful
Resurrection,
March 12, 1818, aged 74 years.

almost all the information we have gained relative to this estimable ho, like thousands of others of the same profession, work out their l measure of goo l, "diligently, temperately, and peacefully," die, ir remembrance is speedily obliterated. We applied to a North- ıshire friend, and the fragments which rewarded his diligence are e than these, picked up from those who remembered "the gar- vicar of Brixworth." "He married a relation of Chancellor , through whose interest he obtained the living of Brixworth. Mrs. ll is described as having been a tall handsome woman, and a of property, but Mr. Marshall, on the contrary, was of diminutive , and a school-master in London. 'She saw Othello's visage in ıd.' No doubt he was a clever man, for he was intimate with Dr. n and Boswell: and we may, therefore, infer that he was a fre- r of the best literary circles of the day. When my friend knew e was a very old man, much afflicted with asthma, but he retained ty of exquisite penmanship, and was an extremely welcome com- to young persons, on account of his botanical and horticultural dge. His garden was a model of neatness. He was near-sighted, ely wore spectacles."

chancellor spoken of above, was, probably, the Rev. William Talbot, llor of Sarum, to whom Mr. Marshall dedicated his *Plain and easy uction to the knowledge and practice of Gardening, with Hints on ınds.* This was first published in 1776, and the third edition dated s now before us. It has been republished several times since, and ctical directions may be yet followed with confidence and advantage. present occasion we shall conclude by republishing the *Hints on thod of Managing Fish-ponds*, and by saying that we shall be l by information on the subject.

e quantity of fish to be supplied obviously depends upon the quantity r, which should be divided, where it conveniently can, into five these may be distinguished by the five first figures, as, 1, 2, 3, 4, mber 5 is intended for breeding, and should be double or treble e of any of the other ponds. Or if this be inconvenient, there may marked No. 5. This pond may likewise be the most distant from se. If the breeding pond should fail to answer this purpose, it will serve as a conservatory for fish of small size, to be obtained else- and, indeed, fresh stores in any case will be found desirable. The ts of this pond in carp and tench, or the greatest part, should be ut annually in September or October, counted in braces; and such rom five to seven inches long thrown into No. 4. The contents of when grown one year from the length of five or seven inches, must into No. 3. The contents of No. 3, having grown one year from must be removed into No. 2. And in like manner the contents of after one year, must be removed into No. 1, which is to contain ch fish as are fit for the table. It is obvious that this pond, for nd convenience, should be the nearest to the house. As No. 5 the largest water, so No. 1 is to be the least; the rest, of sizes n the two. The shape of No. 1 should be oblong, for the con- venience of the net, and the less disturbance of the fish in taking out what are wanted from time to time. A book should be kept by the gar- dener, of the number and size of each kind in every pond. Carp are fit for the table from three to seven pounds each. Tench from one pound and a half to three pounds each. Perch from three quarters of a pound to one or two pounds, &c. It is supposed that none of the ponds have a strong current of very cold, acrid, innutritious water. One acre of water upon a loam, clay, or marl, or any of these with a mixture of gravel, has been stated to be capable of supporting 2,000 pound weight of fish: the number of the fish making that weight being immaterial. Carp and Tench breed most freely in ponds or pits newly made. Tench likewise in almost any ponds, where cattle are admitted. It is evident that perch and pike should not be admitted in any degree, in No. 5; but in all the other numbers; besides their own value, they are of important service, provided that they are strictly confined to a size greatly subordinate to that of the carp or tench. For they destroy not only the accidental spawn of fish which breed, but also several animals, whose food is the same with that of carp and tench, as frogs, newts, &c. Pike above the weight of one or two pounds must not be admitted, even amongst carp of the largest size and weight. With regard to the absolute weight of fish, which any particular pond will support, this can only be determined by observation and experience; as it depends on the different degrees of nutrition in different waters. It is said, that carp and tench in waters which feed well, will, before they are aged, double their weight in one year. The third part of an acre in No. 1 would probably be sufficient for the demand of any family. For, upon the calculation above given, it would support near 700 pounds of fish, which might be divided thus:—50 brace of carp, of three pounds each and upwards; 50 brace of tench, of two pounds each and upwards; 50 brace of perch, of one pound each and upwards. That is, three brace of fish, weighing at least twelve pounds, for the use of every week. Allowing one acre for No. 5, one-third of an acre for No. 1, and one acre and two-thirds for the intervening numbers, the whole water would be three acres. Upon this calculation, the stock of No. 1 at 8d. per pound, would be worth £23 16s. 8d. per annum, and the expence annually of changing the fish from No. 5 to 4, &c., will not exceed £1 6s. 8d. So that the value of each acre would be at lowest £7 6s. 8d. annually. No. 1 being supposed to be near the house, and at no great distance from the garden, if the fish should not thrive sufficiently, which will be seen by the disproportioned size of the head, and the whiteness or paleness of the scales, they may easily be supplied with more food by loose peas from the garden, the sweeping of the granary, worms saved by the gardener in digging, and the offal of the poultry killed for the kitchen; or by letting down the water about two feet, in the spring or summer, where there is a sufficient supply, and sowing the sides with oats, barley, rye, or wheat, very lightly raked in, and then stopping the sluice again. In ponds already stocked, but not accurately regulated, it would be ad- visable to begin with that which has the most pike, otherwise with No. 4, or what is intended for No. 4, and throw all the fish under five inches in length, into No. 5, and the larger, according to their sizes, into the other numbers: and so on with No. 3, 2, and 1. Store fish procured elsewhere, if taken in summer, should be moved in the night in clean straw, wetted occasionally after they are packed: except perch and pike, which can only be carried in clean pond or river water. In moving fish from one pond to another, they should be first put into tubs of water already prepared for them, and afterwards carried in buckets without water. In taking pike or perch, great care must be observed to avoid raising mud in the water. In breeding ponds, all water-fowls, as geese, ducks, &c., should be discouraged; and herons carefully destroyed. If any white fish, as roach, dace, &c., should be found, they are to be taken out; and if there be a spare piece of water for large pike, they should be put into it as food for the pike. Eels may be put with advantage into any except the breed- ing ponds, in lieu of perch. The most easy way of taking them is by trimmers laid over night, baited with small fish, not with worms: other- wise they may catch the carp; or a small thief net may be baited with white fish. Common sewers and drains from the laundry are prejudicial to fish; so are the leaves falling from trees in great quantities. The use of grains should likewise be avoided in large quantities, as having little nutriment whilst they are thus washed by the water. It seems better for the use of the table, as well as more humane, to kill fish designed for food, by an incision with a sharp-pointed pen-knife, or punctures made with a pin longitudinally into the brain, about half an inch or an inch, according to the size of the fish, above the eyes. As this produces an in- stantaneous effect, it would probably save the cruel operation of crimping or flaying fish while alive; as in the case of pike or eels. It is obvious, that this method of regulating fish will apply with its full effect in larger spaces of water; it will likewise apply in a considerable degree to smaller pieces: even where the change is but from a pond for the use of cattle, to a single canal in a garden."

Metrology of the Week.—At Chiswick, from observations during the last 24 years, the average highest and lowest temperatures of these days are 50° and 33°, respectively. The greatest heat, 66°, was on the 9th, in 1826, and the lowest cold, 7°, on the 10th, in 1847. Rain fell on 65 days, and 103 were fine.

Now that glass is so reduced in price, we hope to see it supersede extensively all other materials for the protection of wall-trees; and we will to-day endeavour to dispel a remnant of ignorance which we did not believe lingered in the mind of the oldest jobbing gardener in the least frequented nook of all the British Isles—an ignorance thus expressed to us a few days since—"Glass cannot be so warm as woollen netting!" If either the woollen net or the glass was touching the body to be kept warm, there would be some truth in this opinion; but when they are at a slight distance from that body, so as to inclose air between it and the exterior cold, the contrary is the truth. We will explain this once more, although we have done so as follows both in these pages and elsewhere:—

All cooling is occasioned either by the heat being conducted from a body by a colder, which is in contact with it, or by radiating from the body cooled, though circumstances accelerate or retard the radiation, and whatever checks the radiation of heat from a body keeps it warmer. For example,—a thermometer placed upon a grass-plat, exposed to a clear sky, fell to 35°, but another thermometer within a few yards of the preceding, but with the radiation of the rays of heat from the grass checked by no other covering than a cambric pocket-handkerchief, declined no lower than 42°. No difference of result occurs, whether the radiating surface be parallel or perpendicular to the horizon; for when the mercury in a thermometer, hung against an openly exposed wall, fell to 38°, another thermometer against the same wall, but beneath a web of gauze stretched tightly at a few inches distance, indicated a temperature of 43°.

These results explain the beneficial operation of apparently such slight shelter to our wall-fruit when in blossom. A sheet of canvas, or of netting, prevents the direct radiation of heat from the wall—the cooling goes on more slowly, and is not reduced to that of the exterior air at night before the return of day begins to re-elevate the external temperature.

The colder the body surrounding another body, the more rapid the radiation from the latter; for it is a law of heat that it has a constant tendency to be diffused equally, and the greater the diversity of temperature between two bodies in contact with each other, the greater is the rapidity with which the progress towards equilibrium goes. This is one reason why a temperature of 32° ... risk wind attending it, will injure plants to a ... extent than a temperature ... degrees lower ... atmosphere but it is ... he ... viz., that ... as a wall ... of their ... ...

ler these circumstances, the glass ceases to assist
n its assistance can best be dispensed with.
most unfavourable weather is continued, haze and
om the north-east. In this case, the greenhouse
y parts with its heat, and, after a few days, becomes
almost to the temperature of the surrounding air.
der to encourage those who may be inclined to erect
structure, I may observe, that last year, though the
was far from favourable, the Purple Constantine
ipened perfectly. The mention already made of
amped the air, though during the growing season
h hot water, certainly admits the use of a little arti-
at; but it must be remembered that the introduction
water into a warm greenhouse would, in reality, be
ial chill; and the heat of the water, however great,
lly compensate for the cold which is produced by its
ion."

GARDENING GOSSIP.

Norfolk and Norwich Horticultural Society is
ing this year under a new management. We hope
ll give cottagers' prizes for vegetables and fruits,
of for flowers only, as heretofore. It must
ny reasonable man, that we ought to encourage
ager to cultivate his cabbages, carrots, parsnips,
s, and onions, in preference to his taste for pinks
asies, over which he must lose more time to show
ozen, than it would take him to cultivate two
vegetables. Mr. Hussey, of the Horticultural
s, Norwich, is the newly-elected secretary.

lifficulty which an amateur must experience in
g *new flowers*, may, in some measure, be esti-
y the fact, that £100 will not buy one of a sort
las, fuchsias, verbenas, and geraniums, that are
d with the most tempting properties; yet there
sands who cannot afford to lay out one-tenth of
ney. How necessary is it, then, that some au-
should give the floral public the benefit of sound
nt as to the few very choice things they ought
miss. What a puzzle, to lay before a man of
means lists comprising fifty or sixty new dahlias,
which are described as "first class," as "fine
owers," the "best of their class," the "crack
of the season," and so forth; the most, perhaps,
chaser can command being half-a-dozen. The
fficulty in obtaining the information that is so
le is, that whoever ventures to point out the few
e really worth buying, makes enemies of the
of the rest, and few men would feel inclined to
ter such a test; nevertheless, there is the great
ore us. We must choose the few we require from
dreds that are offered, and must risk whether we
best or the worst. Surely societies may in time
s enormous evil.

Gardeners' Benevolent Society, at their annual
, made no addition to the number of pensioners
funds. So far so good. Many an institution has
a consequence of the illusive nature of "elections
cts." Scores of new subscribers join for the
of voting for some favourite candidate, and
ay a second subscription; and Committees of
ment rarely consider the real value of an an-
Perhaps, one with another, every pension voted
may be worth £150; and we remember, two or three years ago, the Benevolent Society was warned that they were going too fast, for they were electing two or three pensioners twice a-year. We also remember that some of the managers were quite offended at what they considered a very hostile attack. It had, however, the effect of drawing the attention of some judicious members to the state of accounts, and the result was, dropping the half-yearly elections, and having only one a-year. It has now been found expedient to suspend even that. But had the caution been acted on at once, and the reduction been made at the time, there would have been no occasion to suspend the elections altogether.

The subscription for a *great Northern tulip show* goes on swimmingly, and there is no doubt of a great meeting. There seems, however, to be repeated hints, and frequent sentences of ambiguous import, on the subject of stringent rules to compel men to show their own flowers; in fact, our Northern friends, as indicated by their own publications, are, month after month, writing at some body, or, perhaps, at several, to whom this trick of showing flowers grown by others is imputed; and we seriously advise those who are in the habit of contributing to floral periodicals, to drop all inuendoes, and at once denounce such persons by name, or to say nothing more about it. We hate personalities; but implied charges against nameless persons are infinitely worse, because offensive to the wide circle of exhibitors alike—the innocent and the guilty. Besides, strangers to the science of floriculture, who might desire to join the ranks, must have an ill opinion of any class that are perpetually assailing one another. One society in the North has spoken out, and expelled certain persons, by name, and advertised a prohibition to their showing. We hope this has not been upon slight evidence; for although, under justifiable circumstances, it may work a reform, the public cannot but know, that for the two or three victims now punished, scores of equally culpable, and, from their better circumstances, less pardonable delinquents, have escaped. There is nothing does more mischief than unfair showing; but we dislike the vague charges which are made against persons not mentioned, and the consequent injustice done by the conjectures as to who are the parties—as often wrong as right—we, therefore say, "speak out unequivocally, or say nothing."
—E. Y.

THE ROSARY.

[Under this head we purpose publishing such information relative to the Rose as we may be favoured with. We are induced to do this from our knowledge of the increased and increasing interest taken in its cultivation.—Ed. C. G.]

Soil for Roses.—Whoever wishes to cultivate the rose successfully, must either choose a situation where the soil is suitable, or make the ground he chooses for the purpose of the proper quality. If he is so fortunate as to have a garden, the staple soil of which is a good strong loam, of not less than a foot deep or more, with a dry subsoil of gravel or shale, he may plant roses with every prospect of their growing and blooming well. *A good deep loamy soil, with a dry bottom, is the best soil for the rose.* But it is not always in the rose-grower's power to choose a situation where the rose

will find a suitable soil to grow in, yet there is no necessity to give up this pleasing pursuit. Any one may grow either the rose, or any other shrub, where the soil is naturally good; but where it is not so, the cultivator must either exercise his own judgment in improving it, or depend upon the advice of those who have had experience in the matter. We will suppose, then, the worst situation possible in which to attempt growing roses, viz., a low wet swamp, with a thin stratum of soil, and that as bad as need be. The first thing to do is to try to get rid of the water, by drainage; if that cannot be done, the next remedy is to raise the surface of the soil, by digging deep ditches and throwing the soil on the surface, and then adding a covering of good loamy soil. Then plant the roses upon raised hillocks, so as to elevate the roots as high as possible above the bad subsoil. That this plan will answer we can bear practical testimony, even for the tender China and Tea-scented roses, if a large portion of decayed vegetable mould be mixed with the raised soil. For stronger growing varieties, such as *R. Gallica*, *R. damascena*, and *Hybrid perpetuelle*, a mixture of good well-decomposed manure will be useful.

Again, suppose a more favourable situation—one elevated enough, but with a thin soil—the remedy here is obvious: drain the ground, and add soil and dung sufficient for the rose to have a good space for its roots to run into a nourishing, dry compost. In such a situation with a soil so prepared, the rose will thrive almost as well, as in the most favoured and best soil; but even here, the tender kinds will require a large admixture of leaf mould for their fine roots to run and flourish in.

We may easily conceive a variety of soils, where it may be desirable to cultivate the rose, that are unfit for it, either to thrive in, or if it exists for a time in it, to find that its life will be short, and disappointment attend its cultivation. One other kind of soil we may notice, and that is a poor heathy soil, very much exposed. The remedy here is, either to dig out the poor soil, and replace it with a sufficient depth of the proper kind, or, at least, to give a large admixture of it, to that soil already on the spot. In fact we cannot conceive any soil, or situation, so unfavourable as to be totally unfit for the rose. Industry and the application of the proper means, will overcome every opposition; so that the rose may blossom in the desert, and thus prove that "where there is a will there always is a way," for industry and perseverance to overcome apparently insurmountable difficulties. T. APPLEBY.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

CLAMMY ASTRAPÆA (*Astrapœa viscosa*).—*Botanical Magazine*, t. 4544.—The genus Astrapœa was founded, about thirty years back, on *A. Wallichii*, by Dr. Lindley; a splendid low tree, with large rough leaves and drooping clusters of very handsome pink flowers; a native of Madagascar. The name is derived from *astrape*, lightning, in allusion to the bright reddish pink colour of the flowers. The subject of our present biography is also a native of Madagascar and a smaller tree than *A. Wallichii*, attaining the height of thirty feet and more. It was named from [illegible] lection[illegible] blishmen[illegible] [illegible] industriously [illegible] his various [illegible] publications. Although [illegible] *Astrapœa* was [illegible] early name[illegible] [illegible] in the [illegible] [illegible] Mr. [illegible] [illegible] [illegible] upon [illegible] [illegible]

There is only one more species of them known in our collections; it is called the Lime-tree-leaved Astrapœa (*A. tiliæfolia*), and is a native of the Isle of Bourbon. They belong to the 16-*Monadelphia* 8-*Polyandria* of Linnæus, and the Natural Order *Byttneriads* (Byttneriaceæ); an order founded by Dr. Brown as early as 1814, although, until very recently, acknowledged by some systematic writers as only a section of *Sterculiads*, having part of the stamens always barren, and the anthers turned inwards, or towards the partially monadelphous column. But they are readily known from the Sterculiads, which exhibit the columnar stamens of *Mallow-worts*, without barren ones, and with the anthers turning away from the column. All these orders, bordering on the Mallow-worts, abound more or less in gummy matter; and from the bark of some, fibre is obtained for cordage; but the product for which Byttneriads is most remarkable, is the *cocoa* of commerce, the chief ingredient in *chocolate*. The common Chocolate-nut tree, is *Theobroma Cacao* of Linnæus; but several other species yield seeds equally good for this most widely consumed article—for it is only the seeds that are used in chocolate—and they vary in size, and in the number; each fruit yields according to the species from which they are obtained. The number of seeds is generally from twenty to thirty in a fruit—the pulp of which is eaten in the countries where they are cultivated. The seeds are called beans; the average size is that of an almond kernel, but some are twice as large as others. The best are those which undergo a process of fermentation in heaps buried in the earth, and those dried in the sun are inferior. Since the reduction of the duty on chocolate in 1842, the consumption is on the increase; and for those who prefer it to tea or coffee, we would strongly advise them to use only the ground nuts, or flake cocoa, which consists of the nuts merely pressed into flakes; whereas, when reduced into *a paste*, it is often adulterated. Hog's lard and sago are added to make up weight, and red ochre to give it colour.

Astrapœa viscosa, as we saw it in flower last spring, is a noble tree studded over with balls of flowers, like the Gueldre Rose, but rendered more brilliant by the crimson seen in the centre of each flower. Young *branches* and young leaves very clammy; *leaves* on stalks about eight inches long, broad heart-shaped, with three or five angles, and saw-edged. *Flowers* rise from the axils of the leaves near the ends of the branches; stalks about eight inches long, with two heart-shaped bractes (floral leaves) near their middle. The globe of flowers about four inches in diameter; petals five, wedge-shaped, twisted, white, with a crimson base. It is easily

propagated by cuttings, under a bell-glass, with bottom heat; it likes a light loam and abundance of water. It may be kept within bounds by cutting back the leading shoots.—B. J.

THE FRUIT-GARDEN.

The Vinery.—We must now depart from the consideration of out-door fruits for a week or two, in order to aid our amateur friends in their little forcing affairs. The vine may claim first attention, as being, perhaps, the very first in-doors consideration with the majority; and as this is an excellent period to commence, for good and substantial crops, we must just suppose that every one possessing a vinery and plant-house combined, is anxious to know how to proceed, without what is termed "drawing" the pot-plants.

Now this is a delicate procedure, for it will not avail to conceal the difficulties of the case, we would rather show them forth in bold relief, in order that young beginners may learn betimes to steer clear of the extremes of heat and cold—those injurious extremes which constitute the Scylla and the Charybdis of in-doors gardening. It is but fair to suppose, also, that persons thus situated possess a frame or two, or a pit; and when such is the case, they undoubtedly will do well to appropriate one of such structures, at least, to the conservation of some portion of their stock which will not endure the heat and moisture of the vinery. Supposing this to be the case, we will advise accordingly. Now, so various are the inmates in such houses in these days, that, without seeing them, it is a matter of difficulty to advise. We would have wished, moreover, the matter in the hands of our clever coadjutor, Mr. Fish, whose province, indeed, it really is; but, as the thing may not at this moment occur to him, and as we can each, now and then, just jump over our neighbour's hedge without the danger of being indicted for trespass, something may be said on this head.

Geraniums in general, constitute a prime article of garniture in such structures. A good sprinkling of what are termed "hard-wooded plants," also, including the *Camellia*, may be met with; and for the rest they are generally of the soft-wooded classes, in every sense of the word. Then there will be that numerous and interesting group, the *Achimenes*, *Gesneras*, *Sinningias*, &c., and we may, for the present, close our analysis by pointing to the *Begonias*.

And now as to choice of situation in the house; here we may be able to find at least three distinct positions with regard to heat and light. With respect to the latter, the front shelf or shelves will of course be the lightest; and, as to heat, the end where the heat enters, will, in general, be the hottest.

Geraniums will mostly succeed best on the front shelf, at the cooler end of such a house; for there they will receive fresh air copiously, and this keeps them from drawing weakly. The *Achimenes*, *Gloxinias*, &c., are partial to a somewhat shady situation, and of course the warmer the better. As for the New Holland, or hard-wooded plants in general, the best way will be to separate them in two lots for awhile; the one lot containing young stock and kinds for late flowering, and the other early blooming kinds, or those which have recently blossomed, such as the *Epacris* family, and now require to be "forced into wood;" a mode of treament which has been found to answer well with these lovely plants, especially if intended for early blooming in the following winter. Any *true* stove plants, *orchids*, &c., must be retained, of course, with the latter lot, and such may be placed *thinly* about the house, keeping, in general, the tall things *very thin* on the back stage, and if any *must* be placed somewhat thickly, let it be on the front or end shelves. However, we would weed out all that can possibly be spared; for even a portion of the geraniums can be retarded by a timely removal into cool pits, or frames, and become of eminent service when the earlier ones are exhausted with blooming; thus prolonging the season, and enabling the cultivator to cut one portion back betimes, and thus get early cuttings.

We now proceed to consider *the vines*. These, of course, have been pruned long since, and perhaps dressed; if not, the latter must by all means be carried out forthwith; for we need every precaution in these mildew times. Sulphur is now well known to be antagonistic to this sad visitation, and the superiority of preventive over remedial measures need not here be enlarged upon. Our practice is to strip away carefully every portion of loose outer bark; and, for a dressing, we use nearly the same as recommended for the peach. Two or three ounces of soft soap to a gallon of tepid water, well whisked up; to this add three or four good handfuls of sulphur, and some thick clay paint; the whole well beat up, will make a mixture about the consistency of paint, and this must be worked into every crevice of the vine stems, not missing a point, and of course applying abundance of the mixture. In addition to this, we advise a liberal use of sulphur on all the cooler parts of the flues or hot water-pipes; remembering not to apply it to any portion which ever becomes so hot as that the operator would be shy in touching it with his hand. We practice this early in spring, again just before the grapes turn for ripening, and again the moment the grapes are finished cutting; indeed, in suspicious cases, much oftener.

And now for the earlier stage of forcing—if we may so term it—perhaps we had better say the "breaking period," which is the usual mode of technically expressing it. If there is a pit for fermenting materials *within* the house, by all means, we say, make use of it. Tan, tree leaves, warm dung, saw-dust, any of these, or all mixed, will answer well; but of all things, a mixture of dung and leaves covered over with tan is the best. If such is used, and plants are retained in the vinery, attention must be paid previously to rendering the fermenting materials sweet. See advice about the fermentation of dung for early cucumbers at p. 267.

Vines always unfold their buds with more freedom and health under such circumstances; and were it not for the culture of pot plants, which is almost invariably carried on in such houses, we should constantly advise the use of fermenting matter; placing it on the floor of the house in a ridge—if no stage. If, however, pot plants are to stand on a pit containing fermenting materials, care must be taken to prevent the worms entering. The syringe must be used daily whilst the vines are budding, and floors and other parts kept moistened morning and evening.

A constant attention must be given to disbudding; every barren shoot, and those not required for future purposes, should be rubbed away the moment their inutility is discovered. No barren shoot should be left, for which a particular reason cannot be given; and it is bad policy to reserve a portion, on the ground that they *may* be wanted. All the energies of the vine should be concentrated as much as possible in the neighbourhood of the fruit. The shoots should be stopped as they progressively develop their bunches: this tends to husband the resources of the vine, and to give later, or subordinate shoots, a chance of a better development.

If any suspicion exists of the roots being somewhat torpid, it is well to allow the leading shoots to ramble considerably before stopping; this, although somewhat opposed to size in the berry in the lateral shoots, tends much to improve and renew the constitution of the tree, by enlarging the sphere of root action. During all these proceedings, let the utmost cleanliness prevail; this, of

course, involves a liberal use of water, washing the floors and moistening the shelves daily. Cleanliness has more to do with the health of vegetation, especially indoors, than people commonly imagine.

And now for ventilation, which, although only in vulgar parlance "giving air," is yet of the very first importance. It is not merely suffering sudden accumulation of heat (of too violent a character to be safe) to pass away: it is the purifying of the internal atmosphere, by an agitating current, which should doubtless be, if possible at all times, night as well as day, suffusing the internal area in a mild, equable, yet continuous way. The difficulty hitherto, has been to accomplish this without draught; for the latter, although a matter of necessity with the culture of the outdoor vines, (which are, it may be, cradled by the storm,) is, nevertheless, frequently prejudicial to those under a highly artificial course of treatment, as all indoor vines of necessity must be. Having thus pointed to the main features of the "air-giving" question, our readers must endeavour to work it out as a mere common sense affair. All we can add is—Pray do not scorch your vines; neither would we have them starved. Give a little air early, *very early* in the morning, especially at the back of your houses, soon after six A.M., if you please. Beware of fires left in over-night; pray pull them out, or put them in subjection, when you first give air; and if you want to get your grapes forward, apply what artificial heat is necessary principally between four and seven P.M.

R. Errington.

THE FLOWER-GARDEN.

Evergreens.—How different are objects associated with the word "evergreen," compared with what we used to understand by it twenty years ago! Laurels, hollies, junipers, rhododendrons, and a few others, made up the whole sum of them; but now there is a legion of them, and yet we see people planting nice new gardens just as if no increase to this class of plants had taken place for many years. This afternoon I called on a medical gentleman, a great gardener, who within the last two years had been getting up an entire new place, house, gardens, and all; and he planted the whole with such of the best old fruit and ornamental trees as he and his nearest nurserymen happened to know between them, with the assistance of a friend or two; and the result is, that everything is good of its kind all over the garden, which, with the house, stands on rather less than an acre of ground. Now, if I had money enough to enable me to retire from planting cabbages, and had an acre of ground to plant for my own amusement, when I made up my list of ornamental trees and shrubs, there are very few families indeed of which more than one plant could be found in it; at any rate, unless it were for the purpose of a screen or hedge, I would plant no duplicates until I had the cream of all the fine things that could be had for love or money already planted. Instead of having half a dozen of this or that plant, I would have six different kinds of plants. On my way home I could not get rid of the idea of having actually an acre of ground to plant this way. The tea things were on the table when I got home, and the first thing which took my attention was the picture of the weeping willow on my plate—"the willow pattern" as they are called. Well, then, from this incident, I go on to notice several new and very fine evergreens, suitable for planting in and about gardens, small or large.

What all the rest of the world took for a weeping willow, on the porcelain and paper hangings of the Chinese, has turned out at last, and very recently, not to be a willow at [illegible] most beautiful [illegible] green, a plant of which I have just looked at, and I have also read all that has been said about it; but in the description of it I find a serious omission, which I must point out, lest I be called over the coals again, as in the case of the scarlet thorns, for setting our readers against the nurserymen about the Weeping Cypress of China, which is so familiar to all of us from the willow-like drawings on the china plates. The plants are not yet of an age to show this weeping habit; it is only when they are of a certain age that the side-shoots from the main branches hang down gracefully, while the main branches themselves grow out from the trunk at right angles, and only weeping a little at the points as they advance in years. Old larch and spruce fir trees grow that way in many parts of this country. The trunk of the Chinese Funeral Cypress grows as straight as an arrow, like a spruce or silver fir; therefore, a person buying this most beautiful new evergreen might feel much disappointed at finding no tendency of weeping in it at present. It looks now, and will do so for some years to come, just like a juniper, or red cedar, with this peculiarity, that the very ends of all the shoots flag as if the plant was beginning to fade for want of water; and this is a sure test to know it by. Endlicher, a much-lamented German botanist who died lately at Vienna, gave it a very expressive name—not *pendulus*, as we call our weeping plants—but *funebris*, signifying mourning—the Mourning Cypress, or *Cupressus funebris*; but the way they intend to call it here, is the Funebral Cypress, a very easily-remembered name. In China this name would have a double meaning; and it may have the same here if we plant it in cemeteries and other burial-places.

The first account we have of the Funebral Cypress is in Lord Macartney's voyage, where it is mentioned as growing in a place called, "The Vale of Tombs, near the tower of the thundering winds." This vale is in Chinese Tartary, where the winters are much colder than in England: more like the winters at St. Petersburg than like ours, so that there is no fear about its hardiness in any part of this country. Mr. Fortune, who wrote his "Wanderings in China," sent large quantities of the seeds of it to England, and the plants will soon be as common and as cheap as the Italian Cypress, because they can be increased from cuttings quite easily, and no one who loves a garden ought to be long without it. As it grows after the manner of a spruce, and not spreading like a weeping willow, it will not require more room than a larch or spruce, although it will grow to 50 or 60 feet high in good soil. It is very likely they keep some of it yet in pots for ready sale in the nurseries; and when one is bought that way, the best plan is to shake away all the mould, and spread out the roots at full length at the time of planting out, as we have always insisted on in such cases in The Cottage Gardener; and the reason is, that roots confined in a pot will coil round and round in the ball, and if allowed to go on that way after planting in the open ground, the coiled parts would so increase in time as to act on the tree like a corkscrew, and turn it, sooner or later, out of the ground.

The next best of the tall Cypresses is one called *C. macrocarpa*, or large fruited, from Upper California. Mr. Hartweg found it on the hills above Montez, growing to the height of from 60 to 80 feet; and says, when old, it has much the appearance of a Cedar of Lebanon; but in the young state it grows up with us as straight and as fast as the Italian Cypress. This very handsome tree has been in England these 12 years. It was introduced from Russia by Mr. Low, of the Clapton Nursery; seeds of it having no doubt been sent from the Russian settlements on the north-west coast of America. The late Mr. Lambert gave seeds of it also to the Horticultural Society in 1838, without knowing where it came from, and the Society called it after Mr. Lambert; but their

collector, Mr. Hartweg, having named it, with descriptions, and his name having been published by the Society before they were aware that it was the same as the one they had from Mr. Lambert, the unpublished name, *Lambertiana*, must give precedence to that of *macrocarpa*, according to the law in such matters, which has been made for the convenience of the public. Thus the Horticultural Society were obliged, by their own act, to forego the pleasure of dedicating the name of so fine a tree to the memory of a great patron of natural history; and this account of the story will save our readers from buying one fine tree twice over under these two names, as very likely it is in the hands of some nurserymen who may not yet be aware of the change of name; and those who already possess one under the name *Lambertiana*, need not ask for *macrocarpa*. From what I know of this Cypress, I should class it as a rival to the *Araucaria* of Chili, the *Deodar* of India, and the *Cedar of Lebanon;* and being a very fast grower, and having a light green foliage, perhaps it is the very best tree to plant an avenue with that has yet been introduced.

The next Cypress on my list is called *Goveniana*—after J. R. Gowen, Esq., Treasurer to the Horticultural Society of London. This also was sent from California, by Hartweg; and for very limited gardens it is the most suitable of all the new ones, if not of the whole family. It does not come to a tree even in California; but only a stout bush, eight or ten feet high. Like *macrocarpa*, it is of the light green-leaved kind, and all the more lively-looking on that account. It will increase from cuttings as fast as any of them, and is a very desirable new hardy evergreen.

Cupressus thurifera of Mexico is quite hardy, a fast grower, and looks as if it would make a very handsome tree after a few years. It is one that comes to a very great size. In Mexico it rises to 100 feet in height; but we must not be guided altogether by the heights in their native country when planting any of this family. The *Deodar* grows to an enormous size, and so does the common *Larch*, but then as they shoot up with a clean centre column, they do not require so much room as some of the common maples do in our lanes and hedges. The whole race will bear heavy pruning, if necessary; and that is another favourable circumstance for those who are pinched for room, as their side branches must not be allowed to spread far and wide. Indeed, it is the best plan with all of them, and with *Junipers*, *Cedars*, and *Arbor vitæs*, to confine them to one single leader, and force them to assume the shape of a spruce or silver fir for the first twenty years after planting. There is plenty of room above for them, and if the strongest of the side-branches are stopped season after season, and then allowed to grow out freely in smaller branches, there need be no signs of a rigid discipline, and the trees still be kept to the bounds assigned them. A cedar of Lebanon will grow as upright as a larch, and much after the same fashion, if properly attended to for the first twenty years of its age; how much more, then, a Cypress? But let me not be misunderstood. This is altogether a different style of pruning from that which I have been long recommending for the upright evergreen Cypress, commonly called the *Italian Cypress*. Last summer I saw a great number of seedling plants of the *Chilian Cypress*, with Mr. Low, of the Clapton Nursery. I think he told me the seeds were gathered by Mr. Bridges, after whom *Bridgesia spicata* is called; and that he sent a glowing account of the splendid appearance of the trees—in short, that they were the very finest of the Conifera tribe. But all that was known long ago, for Dombey, the French traveller, saw them; and so did Pöpping, the German traveller; but the credit of their introduction here belongs to Messrs. Veitch, of Exeter, and Mr. Low, of Clapton. Although it has been called the Chilian Cypress and Chilian Arbor Vitæ, it has turned out to be neither;—the late Professor Endlicher named it Libocedar, *Libocedrus*, and as this name has been acknowledged by British botanists, and classified so in their books, we must give up the old names. Sir W. Hooker says of it—"It is a tree of great beauty; and there can be little doubt, from its native regions, that it will thrive well in the open ground." Dr. Lindley, writing of another kind of it found in Patagonia, says—"No doubt they are among the finest Conifers in the world. Since they inhabit the same country as the Chilian Araucaria, it is not improbable that they may be as hardy as that tree, and if so they will be of very great value." This other Libocedar I shall notice soon, because the spring is by far the best time to buy them, although they need not be planted out till the middle or end of May. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Potting.—Having last week adverted to the times for potting, I shall now hint at a few things that are necessary to be attended to in performing that operation; for simple as that operation appears, it will generally be found that here, as well as elsewhere, attention to the very *minutiæ* constitutes the high way of success. And

1st. As respects *the State of the Soil*.—It should neither be dry nor wet. If very dry, it will not pack so well in the pot; the water, if it passes freely at all, will find chinks and crannies for itself, and it will be long before the general mass becomes sufficiently moist to support a healthy vegetation. On the other hand, if wet soil is used, it is apt to pack too close; frequent waterings are apt to puddle it; the very closeness, even when the drainage is all right, prevents the air from penetrating; the sun beats upon the side of a porous pot; part of the moisture next the side of the pot is thus parted with, the earth contracts, and fissures are made round the inside of the pot, admitting dry air to scorch up the best fibres, while the internal part of the ball of soil is even yet more than sufficiently moist. Equilibrium, as respects dryness, especially when associated with soil of a proper mechanical texture, will prevent all this. The soil may become dry; but unless, in extreme cases, it will not be cracked into fissures. How to know the proper dryness. Take a handful; if by tightly squeezing it just holds together slightly, it will do; if it forms a compact mass, so that it might be laid on the potting-board without any risk of tumbling to pieces, it is too wet. Hence the drying of soils is an important means of securing success; and when too dry, they must be watered and turned a time or two before using. It is not necessary, however, that the whole of the material put in the pot should be in a uniform state as respects moisture; quite the reverse. For instance; we want some rough stuff to place over the drainage, that may be drier. The soil is rather fine; and to improve its mechanical texture we propose inserting little nodules of fibry loam or peat; little or big, in fact, in proportion to the size of the pot, and the smallness and largeness of the shift given. These nodules, if not too numerous, may be *drier;* the fact of their being so will longer enable them to retain their distinctive mechanical character. So in the case of a manuring principle, which we may wish to act both as a mechanical agent, and to give out its nourishment not at *once*, but for a long period. It should be old; but it should be *hard* and *dried*. From using it in the latter state, we have found it, after being in pots for a year or two, with its bulk not vastly lessened; while through it and around it were clustered masses of fibres. When rapid action from manure is required, it should be finely divided, and regularly mixed with the soil, or used largely as a mulching or top dressing.

2nd. *The soil should be rough and open*—not *close and fine.*—Exceptions there are, such as a covering for small seeds, which must be fine; in fact, if just pressed into the appropriate soil, a dusting of silver sand scattered over, and then a square of glass put over the pot, it will answer better than the finest sifted soil. Even here, in potting, however, the path of safety is that between fineness and roughness. We would not use a sieve at all, unless a very fine one, to get *rid* of the mere dusty finely-divided portion; and this should always be done before adding sand as a lightening agent. But in getting rid of the fine we must not rush to the opposite extreme, and use chiefly huge lumps. In turning out a pot I have sometimes found it crammed chiefly with three or four pieces of soil, of as many different qualities. This was rough-potting with a vengeance. These pieces, with plenty more of a smaller size, mingled with finer and yet not very dusty material, might have answered well in sixteen-inch pots; but was out of all character to squeeze them into one of six inches in diameter. There is ever a tendency to extremes. First, for all, even the largest pots, we sifted our soil as fine as if we were going to fill a thumb-pot; anon, the rage for roughness became so rampant, that a feeling of self-complacency could only be experienced at the potting bench, when we gallantly jammed in pieces like a brickbat into a pot not more than four times larger. Could we wonder, then, that the old sifters gazed on with folded arms, and kept muttering to themselves of ruin and rubbish heaps! The extreme progress men, in their enthusiam for a new idea, could not stop to see that they were entailing upon their plants most of the evils arising from closeness of texture in riddled soils, whilst they deprived them of that complete previous aeration of the soil, and the thorough mingling and blending of separate ingredients, which the old sifters took care to secure. Hence great, in many respects, and for many peculiar purposes, as are the advantages of what is termed the *one* or the *large* shift system, numbers of the failures and disappointments, especially in the case of plants intended to remain several years in the same pot, have arisen from the fact, that many of the disciples of this system were not only convinced of the importance of using rough soil, but also that the individual parts of the compost could scarcely be too large. Rapid growth, in such circumstances, was very deceiving. So long as the fibres kept crawling round the sides of the lumps, "all went merry as a marriage bell;" but when in quest of room and fresh matter, the roots began to penetrate the large pieces that, however, *aerated* before, were getting *soured* by the gradual absorption of moisture, the plants often began to tell a different tale, even when considerable attention was paid to water them judiciously. The rule to follow, therefore, for general purposes, is to use rough and lumpy fibry soil, in opposition to that which is fine and sifted; but let that roughness consist in numbers of small, rather than a few of larger pieces, and when the latter are used, let them be in proportion to the size of the pot, and the size of the shift given. For instance, for a four-inch pot, the largest pieces may range from the size of peas to horse-beans; for an eight-inch pot, the largest pieces may be like walnuts, but not many of that size; and for a sixteen-inch pot, a few pieces may be as large as eggs, with every other size downwards, and well packed with the finer soil from which the mere dust has been extracted.

3rd. *Securing and preparing suitable soil.*—This was adverted to last season. Heath soil, so necessary for hair-like rooted plants, can only be procured from upland commons where the heath naturally grows. Loam of almost every quality can be procured by taking the surface turf from pasture, and the sides of roads, and building it in narrow ridges when dry, and using it after being so built up for six or twelve months. Failing these sources, for all plants not requiring peat earth, suitable soil may be obtained from the sides of highways, and by skimming off the finely aerated flaky material from the tops of ridges that have been trenched up for some time in the kitchen garden. In using the latter, however, you must in general be content with small shifts, as you will not be able to get the soil rough enough for large ones. The plants, notwithstanding, will thrive beautifully, and size for size will often yield more bloom than if you had used large shifts and larger pots. If the latter is your wish, you may use pieces of charcoal, or what will answer extremely well, get a few fibry sods taken off quite thin, dry them over a furnace, or, what is better, char the grassy sides by putting them on an old spade or other iron, and then place them over a fire; allow the sods to be exposed a few days to sweeten, and then, if broken into small pieces, they will not only be useful for placing over the drainage, but also for mixing with *any* but chiefly *fine* soil to keep it open. Most plants seem to like such charred turf when used in moderation, and there is no danger of any insects or their eggs lodging in it. Where rough soil is wanted for large shifts, it is best to pile the turf, when dry, in narrow stacks, through which the air may circulate, and yet the wet be excluded. In using such a heap, after the time specified, there is little occasion to expose and turn it frequently afterwards, which would be necessary in the case of *other* fresh soil not so exposed; for we must not forget that every turning we give, while it renders the soil more aerated and sweet, renders it also more *fine* and *dense*, from the decomposition of its fibre. Charcoal, owing to its lightness, not to speak of its chemical properties, I consider the best assistant for rendering the soil porous; and enough of this may be got from every garden by charring the rubbish. Failing that, however, broken brick, broken pots, and lime rubbish may be used with advantage, if there is nothing in the peculiar plant to render one or all unsuitable.

4th. *Draining.*—This has several times been referred to. A plant badly drained will never show fine cultivation. Where worms are likely to intrude, the convex side of the potsherd should be placed over the hole; but for amateurs nothing is better than small caps of tin or zinc to cover over the hole completely; and in either case plenty of drainage placed over them, the materials being smaller as it ascends. For anything requiring nicety, there ought to be at least one inch of drainage in a five-inch pot, and so in proportion. The best covering for the drainage is a sprinkling of green moss, to separate the drainage from the soil; over that some of the rougher materials should be placed, and then some of the finer, in which the base of the ball should rest.

5th. *Potting or Shifting.*—Need we premise that the pots should be new or thoroughly clean. No man deserves to have a nice plant who would place it in a dirty pot, and rarely will he be rewarded with one. When he attempts to shift again it serves him right to find that roots and soil alike are so sticking to the sides of the pot, that he must break the pot or lacerate the roots. Before commencing operations, see that the ball of the plant is *moist* from the centre to the circumference. If not, you can never moisten it afterwards without labour, which may as well be spared. 2. If you wish to rattle your plants *on* until a certain period, upon the successive shift system, never allow the roots to *mat* round the sides of the pot; but reshift as soon as they reach there. 3. If the roots should be a little matted, gently disentangle them, even though in doing so you get rid of a good quantity of the old soil, and spread these roots out into layers, packing them as you proceed with soil of various degrees of fineness. You will not do this at first quite so quickly as if you merely placed your plant in the centre of the fresh pot, threw compost round it, jam-

it down with a stick or your own fingers, lifted the nd gave it a downward stroke on the bench to settle ght within, and then passed your open palm over the ce to remove any extraneous earth, and with a look uch as to say, Hav'nt I done well? And for com- ephemeral things, we would at once reply in the native. But when you get used to it you will pack fibres nicely, without wasting much more time; the pleasure of thus tending a favourite plant must lt to be known. 4. The soil in general should be gh in temperature, or nearly so, as the plant en- previously. Cold soil has injured many a fine . I have said nothing of cutting roots, because chiefly applies to particular times and instances. rally, when after a period of rest, fresh growth is to duced.

1. *Immediately after treatment.*—Whatever system otting has been adopted, a greater excitement to th then usual should be given. If well watered ously to potting, and a largish shift given, little r will be wanted at the root for a time; but that ld be several degrees warmer than usual; and fre- t syringings in bright weather should be imparted, mpanied with shading, if necessary. If a small shift given, water will be wanted more freely at the root; here, as well as in the other case, a higher tempera- should for a time be maintained until fresh growth reely commenced, when air and exposure may be freely given.

ntended as I promised to have said something in detail on the one-shift system; but its leading res have already been referred to, and its chief liarities may be noticed before long. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

TS THAT THRIVE WELL IN POTS—*Continued from page* 323.

NDROBIUM PAXTONII (Mr. Paxton's D.); East Indies. pals and petal, clear bright yellow, lip the same r, with a deep crimson spot in the centre. This is ry fine species, grows strong, and flowers freely. seudo-bulbs are generally three feet high before they r. 42s.

SANGUINOLENTUM (Blood spotted D.); East Indies. e described this species under the head Orchids that well in baskets. Since then we have cultivated it pot, and tied the psuedo-bulbs upright to small sticks, and the plants grow well and flower freely.

SPECIOSUM (Showy D.); New South Wales.—Sepals petals and lip of a creamy white, beautifully striped spotted with pink. It is a plant that grows strong freely, and must be large before it flowers. It res about two months high temperature, and then eat of a greenhouse for the rest of the year. Indeed, a query whether, with judicious management, the house treatment will not be best for it all the year. J. Walker, of Eastwood, near Nottingham, a suc- al bloomer of orchids, writes in the *Gardener's nicle*, "My *Dendrobium Speciosum*, with a constant house treatment, will have nine very fine spikes of rs expanded in a few days." To such as have no this is welcome news, as they may cultivate easily greenhouse this very fine orchid. At the same we cannot forget that at Chatsworth there was, some ago, a very large plant of this species cultivated in rchid house, amongst Dendrobiums from India, and Indian orchids; and in that climate and situation wered more freely even than Mr. Walker's. Neither we forget the large plant of this kind in the orchid e at the London Horticultural Society's garden, which was described in THE COTTAGE GARDENER about this time last year; besides some others that we have noticed from time to time. The fact is, the plants must be of some age and a considerable size, and then with a proper routine of culture, a growing moist season, and a long period of rest, they will grow and flower most satisfactorily, even in a common stove or orchid house. 10s. 6d.

D. SULCATUM (Furrowed D.); India.—Sepals and petals pale yellow, lip orange, with two small spots of red near the base. The flowers are produced on short racemes, near the top of the flat-furrowed pseudo-bulbs. It is a pretty growing species, and the flowers are slightly fragrant. 42s.

D. TAURINUM (Bull headed D.); Manilla.—The whole flower is of creamy brownish hue, but finely margined with purplish lilac. The petals are curiously twisted like a corkscrew. When the flowers are open they bear some likeness to a bull's head, whence its specimen name. It will not flower till the psuedo-bulbs are very strong. The plants are something like the more common species, *D. undulatum*, in habit. It is very scarce. 105s.

D. TORTILIS (Twisted D.); Java.—This is a new species, and very little known. The flowers are of a pale yellow, almost white. Mr. Mylam, gardener to S. Rucker Esq., has under his care a fine plant, and he informed us "that when it was better known, it would be considered one of the most valuable of the genus, both on account of beauty, free flowering, and its long season of blooming." It was introduced by Messrs. Veitch, of Exeter, and is yet very rare. 105s.

D. VEITCHIANUM (Mr. Veitch's D.); Java.—Flower of a buff colour. This species is very much like *D. Chrysotoxum*, excepting that the stems, or psuedo-bulbs, are square and much shorter, and the flowers of a paler hue, and more densely flowered. It is a good addition to the genus. New and rare. 84s.

CULTURE.—In order to be successful in their culture, the tyro must know that the climate of their native country consists of three seasons; a wet one, a dry cool one, and a dry hot one. These follow in regular succession, year by year. In the rainy season the Dendrobes grow, in the comparatively cool one they rest, and in the highest dry hot one they flower; *and it is a remarkable fact, always to be borne in mind, that in localities in the warm regions of the earth, where the dry hot and even the cooler climate occasionally prevails, no epiphytal orchids are found.* The rainy season must take place also, hence, in our artificial climate in our orchid house, to succeed well we must, in a degree, imitate these peculiarities. We must have a season of growth, a season of flowering, and a season of rest; and the best times, as we are situated, for these seasons will be to have the flowering season in the early part of the year, the growing season during our summer, and the resting season in our winter. This is not exactly the natural way in which they succeed each other, but experience proves that it is the best and most practicable for this country.

Like all the rest of the tribe, this genus should be potted when they begin to set forth new shoots. These shoots ought always to spring from the base of the last made shoots, close to the compost. Frequently shoots will break out near the apex of the psuedo bulbs; unless wanted for increasing the number of plants, these should all be rubbed off as soon as they appear; if left on they will prevent or weaken the proper shoots from the base of the last made bulbs.

Compost.—The same mixture of rough fibrous peat, chopped sphagnum, broken potsherds, and pieces of charcoal, as recommended for *Cattleyas*, will answer well for Dendrobes. It should be in a moderately dry state when used. These plants love plenty of pot room, but the pots should be wider than deep. They must be well drained, and raised a little in the centre of the pots.

During *the growing season* they ought to be abundantly supplied with water, both at the root and top; moderately at first, till the new shoots have attained a foot in height, at least such as grow to two, three, or more feet; the more dwarf growing kinds may have a more abundant supply of water as the bulbs advance to their usual size. During this growing season the syringe must be used freely; in very hot weather they may be syringed morning and evening. Keep the air also well supplied with moisture by flooding the paths, wetting the pipes and walls every day. The hygrometer, an instrument used to denote the quantity of moisture in the air, will be found an useful instrument, and ought to be in every orchid house. The temperature, when the plants are growing, should be at the maximum 70° by night, and 85° by day. When they are in flower, they will last much longer if removed out of the moist hothouse into a cooler and drier one, but as soon as the bloom is over they should be removed into the growing house again.

As soon as the pseudo-bulbs are fully formed *the season of rest* should commence; the quantity of water should be gradually reduced, the air should be kept drier, and the heat moderated. This, if done judiciously and slowly, will gradually harden the shoots, and form the germs of the future flower buds. If they are kept growing too long the shoots will be elongated but weakened, and the flower buds will be changed into wood buds, which will, of course, disappoint the intention of the cultivator. About the month of November, if the desire for resting has been accomplished, all water at the root, and moisture in the air, should be entirely withheld; and this season may be prolonged two, three, or even four months. Where several plants of one kind are in the collection, the season of blooming may be still further lengthened, by placing one or two plants in a greater heat, and keeping the rest in a state of quiescence. Those in heat will then flower early, and the rest may be brought into heat in succession; and every year, if the same plants are started into flower at the same time, the habit of blooming early or late will be induced, and so the season of bloom be prolonged for several months. Though the natural season for Dendrobiums blooming is from March to April, yet by judicious resting it may be delayed till May and June. It was by such prolongation of the season of rest that the exhibitors of *Dendrobium nobile*, and other fine species, were enabled to keep their plants from blooming till the grand exhibition of the London Horticultural and Royal Botanical Societies took place in May and June; and we have no doubt the same exhibitors have their plants just now in a state of complete rest. Of that we had ocular proof a few days ago; we had then the pleasure of looking over the grand collection of orchids belonging to S. Rucker, Esq., at Wandsworth, and observed six or eight large healthy plants of *Dendrobium nobile*, *D. cærulescens*, and *D. densiflorum*, perfectly healthy in a common greenhouse! And Mr. Mylam, the excellent grower of them, said they were placed there for the express purpose of prolonging their rest, so as to bring them into bloom at the very season when the exhibitions were to take place. This is a lesson worth conning, even to the growers who have no intention to exhibit, but who cultivate these charming flowers for the gratification only of themselves and their friends. And as several of the finest Dendrobes are easily increased, either by division, or by the young plants readily and frequently formed on the old psuedo-bulbs, no cultivator need be without several duplicates of several species, which he may, when strong enough, flower in succession, by prolonging the season of rest for part of his plants. T. Appleby.

FLORISTS' FLOWERS.

Ranunculuses.—It is not so well known to private growers as it ought to be, that to succeed well in growing these flowers well, and to bloom them freely, the soil about them should be close and firm, almost approaching to hardness. If the bed has been rightly prepared, and the flower planted according to the instructions given in former numbers, all will be well. When the tops begin to push through the soil, it will be of the greatest importance to tread the soil down very firm between the rows, and if any symptoms of cracking in the soil appear, the surface should be stirred to prevent it. Protection from sharp late frosts which may yet occur should be given, by covering whenever such weather is likely to take place. Dahlias continue to propagate. Carnations: forward plants may now be placed in their blooming pots, and kept under shelter from heavy rains and cold sleet. For the treatment of other florists' flowers see preceding numbers. T. Appleby.

THE KITCHEN-GARDEN.

The season being thus far advanced, with but little of either frosts or cutting winds, we shall soon begin to find how much requires daily to be done during the present month; and particularly must we remember to be prepared against the strong winds that are to be expected at this season. March is generally one of the finest months in the whole year for sweetening and pulverizing the soil, which should, as previously recommended, be trenched, dug, forked, and surface-stirred continually; and it is an excellent system at this season, where lime is at hand, to dredge the earth before trenching, &c., with some newly-slacked: this being an excellent preventive, when stirred amongst the earth, against the depredations of slugs, and the hatching of their eggs.

Early *Cauliflowers*, and those recently planted out, as well as early *Peas* and *Lettuce*, may be assisted and kept very healthy and hardy, by the application of dry dust dredged about them.

Potatoes that have been some time planted, should have the earth's surface well harrowed; but, previous to the operation, two or three cwt. of salt, per acre, would prove very beneficial.

Sweet Marjoram, *Basil*, *Capsicum*, *Chilis*, and *Tomatoes*, should now be sown in heat. *Borage* may be sown, and also the *Walcheren Broccoli*. This last-named variety, if obtained true, and sown at various times from now till July, will furnish the table nearly throughout the year. *Cabbage* and *Cauliflowers* should be sown and planted liberally, and those growing under hand-glasses should be kept well surface-stirred, the hand-glasses raised in due time, and the cavity blocked with the surrounding earth, so as to form a basin about the plants, into which a small portion of half-decayed manure or leaves may be placed for mulching, and upon this liberal soakings of tepid liquid-manure may be applied without fear of surface-binding the soil.

Sow also *Horn Carrots*, taking advantage of every dry or frosty morning to get the soil in a pulverized healthy condition for the main crops to be sown a fortnight or three weeks hence. The *Onion*, too, should be sown in full crop, whenever the soil is in a good condition for the purpose, and dry fine weather prevails. *Parsnips* and *Parsley* should be sown on the same principle; and *Potato* planting, if not already brought to a close, should be done forthwith.

The herb plantations should also now be put in order. *Tarragon* being an early grower,—shoots three inches in length should be pulled up, with some of their fibres attached to them, and planted six inches apart each way. *Sage* should be pegged down and layered, and the last year's young plants bedded out. *Pennyroyal* should be planted in a damp shady situation. *Radishes*,

should be sown in full crop. *Spinach*, sow a l often. Sow also *Thyme* and *Winter Savory*, nt and put in cuttings of all the different herbs

IG. — This department should now be well to; keep the vine of the bearing *Cucumber* thin; stop regularly and in due season all shoots; do not allow them to run away too evious to stopping; the point of the shoot e taken out as soon as it can be got at; and ore than one shoot at a joint shows, rub off ie, and those left should be thinned; the thin- uld be repeated when set, leaving at no time it than the plants are likely to bring to per- a succession without exhaustion. Sow in suc- attend well to the application of a kindly humid apply tepid manure-water occasionally to those aring.

prepare for, and ridge out in succession; wing fruit should be stopped one joint above fruit appears. A brisk kindly heat should be maintained. Air should be applied liberally, but at the same time systematically, so as to prevent the admittance of any cold cutting draught suddenly on the plants, and taking care, if bleak winds prevail, that the air cavity is protected by coarse canvas, bunting, straw, fern, or evergreen boughs, so that the draught may be softened by simple means, which is very essential.

Mushroom-beds should be made in succession, taking care to select well-made stable-dung, and apply to it a sufficiency of holding loam, to prevent the evaporation being lost, or the materials becoming too dry. Spawn while the heat is moderate, and case with kindly holding loam, making it firm. Beds that have been spawned a sufficient time to be now showing mushrooms, and that yet do not show, should be examined; and, if found dry and cold, bore a row of good-sized holes through the middle, but not to the bottom, and pour boiling water into each hole, immediately blocking in the heat and evaporation with a wad of hay or mulch.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress "My Flowers," &c.

vantages of *character* are very great to those whose epends upon their own exertions; and this I think ple, especially the young, are very apt to overlook. ople are heedless and inattentive to what their ell them; they cannot see that good advice is their benefit, and fancy they shall do very well way, without attending to the long lectures of have grown old and forgotten what it was to be

a grievous mistake; but it is what every person may when young, and sighed over when old enough to uffer for their folly; but then, better feelings are late, the mischief is done; and where character is , what is done cannot be undone.

rry to be obliged to say, that in the present times nong the lower orders do not maintain that proper over their children which they ought to possess; hildren must be made to do what is right when ot judge for themselves; and prevented doing like to do when it is wrong. How striking is the God's favour towards Abraham on this very point! ow him, that he will command his children and old after him, and they shall keep the way of the justice and judgment; that the Lord may bring aham that which he hath spoken of him." And l bitter was the judgment which the Lord sent family of Eli, because he restrained not his sons

Solomon assures us that "The rod and reproof om: but a child left to himself bringeth his shame." A duty, therefore, to God, as well as to o be fulfilled in restraining children, and giving ts of obedience from their earliest youth.

ing now to bring before my younger readers the f George B——.

er was a man of the best character and the most e conduct. He had worked on our property for ny years; and when consumption had too clearly im, to allow of his doing a good day's work, his ring effort was to plant a strip of potato ground, sister and I had undertaken to manage. John l always striven to make his children obedient and e. He had maintained over them the due autho- arent; and had worked early and late to support fortably.

ary B—— was left a widow with five sons and a the eldest boy being scarcely seventeen. Her r these boys was great, knowing, as she said, "the way boys go on now, staying out all night sometimes, and never minding what their fathers and mothers say to them." She particularly feared for her power over her eldest son, whose stubborn temper had given poor John much trouble and extreme solicitude, when he felt that his own arm would soon be powerless, and his voice silent in the grave. But during a long and tedious illness, he had wrestled for them and his widowed partner, "with strong crying and tears;" he had put them into the hands of the Father of the fatherless, and the God of the widow, resting on those comfortable words: "Leave thy fatherless children, I will preserve them alive; and let thy widows trust in me." The fruit of his dependence upon God was remarkably evidenced. The very son who was the subject of the parent's alarm, became to his mother a very prop and stay. From the moment his father's eyes were closed, George stood forth to be a father to his younger brothers, and to strengthen his mother's hands. The orderly habits of the little household were carefully preserved. He would allow no staying out at night, no idle company within, nothing that could "upset" his mother, or lead his brothers into mischief or temptation. He himself was a pattern of sobriety, and steadiness, and saving.

His temper was such that he had already lost two places; but he made a capital day labourer, active, powerful, hard-working, honest, and true; he came home quietly and steadily every evening, shut up the house, and was fast asleep at nine o'clock, with his brothers safely around him, and was up with the lark, and off to work again. His mother began to look young, and almost pretty, under the well-ordered administration of her stalwart son; and has declared with tears of joy, over and over again, that George was a husband to her, and a father to his young brothers and sister. "He is my only comfort" she used to say; "he won't let his brothers do anything wrong at home; when they come in they must behave themselves. He bought Charles a pair of shoes, with his own money; and pays me as regularly for his own keep, as the weeks come round. He never goes out after idle boys, but reads his book at home, and goes to bed, when other young men are idling about the streets." Poor John! how happy his latter days' would have been, had he known the comfort his son would become to his widowed mother!

George afterwards became an out-door servant to ourselves. We employed him, because his *conduct was so steady and trusty;* and we found him, indeed, as his mother said, "a comfort." He was so handy, that he could do everything,

and did all things well. There was no need to look after him, for he never loitered or spared himself; and if George was, by any chance, not to be found, there was no occasion to suspect anything wrong: when his open face came back, all was found to be right. He may really be said to have had an old head on young shoulders, for he was never thoughtless or mischievous, like other lads, but always at work, and never in harm's way. His only fault was his temper, and that we have reason to think is mended of late. While under the gentle rule of a lady, he did very well, after the first four months: he became softened and civilized; but under two previous *masters*, he had misconducted himself and suffered for it. He could not bear to be found fault with; and therefore lost two excellent situations, where he learned much as groom, from his ignorant and self-conceited insolence. He was out of work for some weeks before he came to us; and he could not have taken an indoor place again, because his temper could not have been passed over; but during the two years he worked for us, he seemed to improve in temper and manner, and we were truly grieved to part with him. The offer was made him to enter the service of a clergyman as groom, too good a situation to be rejected; and after long, and strong admonitions against his besetting sin, George entered upon domestic service again. He has now been in his place nearly a year, and no fault, I am happy to say, has yet been found with him.

Let young men think seriously of the value of *character*. George's temper was frequently forgiven and overlooked, because he was so steady and good. Young people are too often headstrong and full of their own consequence, because they are too young and inexperienced to feel how ignorant they really are. When they are steady and trusty, good sons, and good servants, failings of temper *may* be overlooked and forgiven, if they are sorry for their fault and really strive against it; but when there is nothing in them to be depended upon and valued, a bad, ungovernable temper, although it may *seem* a trifling fault, will not be borne with; and want of employment, or continual change of masters, which is always discreditable, will be the consequence. "A good name is rather to be chosen than great riches:" in fact a good name *is* riches, for one who can be depended upon is sure to be always employed.

Let the young "Remember their Creator in the days of their youth." He alone can give grace to walk soberly and honourably; and His blessing upon their ways, will give them power to resist evil, and obtain favour in the sight of man.

COCHIN CHINA FOWLS.

The superiority of different breeds of poultry has lately become quite a vexed question, and perhaps the experience of an amateur who has tried several, may not be uninteresting to your numerous readers. I tried the Everlasting layers, common Barn-door fowls and Polands, but found that the number of eggs obtained was very limited. Hearing of Cochin China fowls, I applied to a gentleman who had his stock from the Royal Poultry Houses, and began with one cock and two hens; and as they were very expensive, to prevent any contamination of the breed, I kept no other male bird. I soon found out the superiority of the Cochin China fowls, and gave over all the rest of my birds to the executioner, and have now a fine yard, of what I believe to be a genuine breed. These fowls certainly lay more than double the number of eggs I have ever had before from a similar quantity of birds; as I always attend to them myself, and have kept a register of the eggs laid from the time I first commenced keeping poultry.

Two gentlemen who have had the breed from me, have been quite astonished at their fecundity. The eggs are of a brownish pink, or flesh colour, with minute white specks. The eggs generally take rather longer to hatch than the common fowl; the chicks are large and sturdy; the hen leaves them early, and begins laying again; they grow rapidly, and some birds from my eggs, weighed at 8 months old, about 8 lbs. The colour is bay, either of a lighter or darker shade; the tips of the feathers being generally shaded of a dark colour; the tail very short, and in the cock bird bushy; the thighs are covered with a mass of pluffy feathers, and there is great breadth over the back and behind; the wing is gathered up and partly hidden; the head is small and elegant; some have smooth legs and some feathered, the colour of the legs is generally yellow, but not always. I do not believe they lay more than one egg a day, the flavour of which is delicious. My birds are fed on good sound barley, of firm wheat, grass, and occasionally a cabbage or two, and now and then pollard, with a little Cayenne pepper; I also give them a piece of bullock's liver, once or twice a week, as from my birds being rather confined, they cannot procure worms and insects. I think when this kind of poultry is more generally known, it will quite supersede other species.—Henry Copland, *Chelmsford*.

THE YEARLY TRANSACTIONS OF THE HEN-YARD.

A PRACTICAL GUIDE FOR THOSE WHO MAY WISH TO KEEP A FEW FOWLS AND FIND THEM PROFITABLE.

(*Continued from p.* 339.)

JANUARY AND FEBRUARY.

There is little to do for the fowls, beyond giving them plenty of good food at this early season of the year.

I believe few persons would consider early chickens sufficient compensation for the trouble of a brood during these usually inclement months. Any, however, who may think the early chicks a reward for the trouble and probable disappointment, I would advise to sit the hen in a warm place (a kitchen in common use, for instance), and to keep the young chickens under shelter, except when they can be placed out in a little warm sunshine, and in a sheltered spot. Have the floor of the house where they are kept thickly strewed with gravel, and give them some meat chopped fine, and a little green with their food. A good supply of eggs is, however, as good a return as we can expect from the fowls at present—perhaps the best—and to forward this end, let them have a sufficient quantity of good heavy barley.

While speaking on this subject of laying, I will give my opinion of *a good laying hen*—for many persons differ much on this point. The best common hens I have, lay, in fair weather, four days in five. I consider a hen a good layer, that will give two eggs in three days; a bad one which lays less than once in two days. There are few hens that do not indulge in a week or two's holiday sometimes; but if this occur too often, or last too long, my lady had better be urged to her duty by a little warm food.

If you now have some hens, which at the proper season got well through their moulting, or pullets above eight months old, still unproductive—in spite of good feeding—separate them from the rest every morning, and give them a good meal of potatoes, pollard, and barley meal, mixed stiff with hot water or pot liquor. Let it be given so warm that you can just well bear your finger in it. I have never found this fail, if regularly persevered with for a fortnight or a little more; as soon as they lay let it be discontinued. Warm grains from a brewery, warm baked potatoes, or fried oats given warm, will answer the same purpose. This treatment may be repeated throughout the year whenever the fowls lay badly, always taking care to separate those which lay well, on the principle—"that we must not goad the willing horse."

A little meat or bullock's liver, given raw, is very good for the hens in winter, and very likely to promote their laying. It is a very good plan to keep them laying well at this season, as they will thus be more likely to sit in good time.

It is now advisable to reduce the number of fowls (if this should not have been done already), by killing all superfluous cock birds for the table. Many persons advise killing the hens; this I seldom do, provided they are good layers, for the following reasons:—First, I find those hens which begin by being good layers, continue the same for several years; secondly, these hens being strong, and accustomed to the cold of winter are more likely to be healthy, and to lay eggs at that season than the pullets; and, in the third place, both from size and steadiness they make excellent mothers. Instead, therefore, of having the old hens killed without a sufficient reason, it is my practice to notice the pullets particularly when they begin to lay, and to weed out, for the table, all that do not lay well: this has one advantage

e overlooked by those who keep but a few fowls—
ss than a year old they make good fowls for roasting
g; and, if well fed, are in good condition without
up to fat; while old hens, on the contrary, are only
roth. If, after taking away the unnecessary cock-
d all the pullets, which, having begun to lay—lay
he number is still too great, some of the old hens
course go too. By February the stock should be
to a number small in proportion to the place where
n, allowing not more than six or eight hens to each

nay after this begin to preserve *eggs for hatching*.
hose which are laid by your best hens, and let them
side with care; place them on end in a box of bran
e broad end downwards. Eggs for hatching must
ny account be more than a month old: they should
e been laid above a fortnight.

persons coop and fatten *fowls intended for the*
I do not find that much is gained by this; and the
rds are very uncomfortable all the time. Birds
re well fed will generally be fit for killing without
but if on taking them up the breast bone feels too
et them aside in the middle of the day and let them
uch meal porridge as they choose; this, with a good
orning and afternoon among the other fowls, will
ing them into good condition.

WORK TO BE DONE IN JANUARY AND FERRUARY.

all the fowls abundantly twice a day.
ate bad layers, and feed them as directed.
a *mid-day meal* to fowls soon to be killed.
rds the end of February *store the eggs* of your best
r hatching. ANSTER BONN.

(*To be continued.*)

TO CORRESPONDENTS.

e request that no one will write to the departmental writers of TTAGE GARDENER. It gives them unjustifiable trouble and

All communications should be addressed "*To the Editor of age Gardener*, 2, *Amen Corner, Paternoster Row, London.*"

NG FROM IRON PLATE AT BACK OF KITCHEN FIRE (*A Begin-*
e should have thought you would have obtained sufficient heat rposes you mention; of course, much depends upon the heat te. If that was very warm, eighteen inches of it exposed ought hrown out heat sufficient. Have you tried taking a small pipe greenhouse into this chamber near the plate, and another small stoppable at pleasure, so as to give a circulation of air? We dvise you to have anything to do with a tank in such circum-

If your plate will not give you enough of *heated* air, neither give you enough of heated water. If you were to fix two small your kitchen boiler, you might heat your greenhouse, and have r propagating at your pleasure. If you had given a section, rough, we should have better understood you.

LS FOR GREENHOUSE (*G. I. T.*).—As you have the advantage bed, there are Balsams, Browallias, Cockscombs, Thunbergias, Egg plants, and Sensitive plants, &c. The culture of all, or hem, has been given, but we will keep your request in mind.

E FORTUNII (*R. W.*).—We have no doubt this may be culti- *cold* greenhouse where frost is excluded. It may not, however, resh as in a warmer house, and it will not flower so soon; but if was well matured, it will bloom equally well though later.

NG CAMELLIAS AND AZALEAS (*Ibid*).—You are quite right; o necessity at all for shifting these every year. We have some ly in bloom now that have not been shifted for several years, but k like topers. When the growth becomes very stunted, it is as saying "enlarge my pasture." For large plants it often becomes le to shift often, as the pots would get so heavy. Weak cool water, such as from cow dung, must in these cases be frequently See some late articles on potting.

W BED (*Bruno*).—*Bartonia aurea* and *Sphenogene speciosa* six weeks' flowers. *Sanvitalia*, though not so bright as they, er better to match the height of the *Emma Verbena*. *Phlox ndii* will not do well in a shady place; it would run too much as a farmer would say.

CLEUM GIGANTEUM (*T. T.*).—It will do well where you propose. ich soil; it is a biennial, recollect, and you must sow a few seeds y year as soon as they are ripe; but you can transplant it next

S (*Ibid*).—A sensible gardener like you, though without the es of the "profession," should not be led away by a bricklayer's . If the lime does not slack equally, sift out, or rake out the nd keep them at the bottom. For your clay gravel, use only one- art of lime. Try and write more concisely: it is the best point writing.

EXCLUSIVENESS OF THE ASH-TREE (*Ode*).—No plant, evergreen or otherwise, can be established in the usual way under an ash-tree anywhere. The roots of the ash will suck away the goodness out of the soil before the new planted things can get hold of it. Yews, box, or laurel, *might* be managed so as to compete with the ash roots after a time, by using old tar barrels sunk in the earth, as we have often advised.

CUTTINGS IN WATER (*Ibid*).—The best way to establish in pots cuttings that have been rooted in water, is to place the pots under a hand-glass, or some close covering for a week or so, and to keep the air very moist about them, say by damping with water before the pots are placed under the glass.

FLOWER-BEDS—PETUNIAS (*Phelanthe*).—We have said a hundred times we never undertake to plant flower-beds on paper, and as often assigned the reason. *Petunias* are trained on the ground, first, by hooked pegs, or by doubling thin pieces of matting round the shoots and fixing the ends in the earth. After the ground is covered, and they grow nine or ten inches high, place the spray from the top of peas'-stakes, or from the remains of old birch brooms among them—say ten inches apart all over the bed. These sticks not to stand higher than the tops of the plants; ten days afterwards stop the shoots all over the bed, both to make them come up thicker and to look of equal heights. Keep all parts of the bed to a uniform height for the rest of the season, by stopping such tops as grow faster than the rest; and whenever the shoots get top heavy, stick in a few short branches as before, and no rain or wind can displace them.

VINERY (*G. L.*).—Your views, although exhibited in a much more business like way than many queries, are still not clearly defined. Gentlemen situated like you should at once make up your mind as to whether you will have Pines or not. The latter can be grown with grapes, but much better separately. We will, therefore, give you the measurements of a good vinery, admitting, of course, of some front or end shelves for plants, &c. We suppose that a wall stands already against which to put the house; back of house twelve feet above the "floor-line;" front wall five feet above ditto; house thirteen feet wide; the floor-line thirty inches above the ordinary ground level; by no means below. Border outside at least twelve feet wide, and inclining nearly as the slope of the roof. The front wall, if possible, on arches; the Vines planted inside; the mouth of the arch communicating freely with the volume of the border. Soil porous, two feet deep, and most thoroughly drained. You will thus ascend by some four steps into the house, and this simple affair will, less or more, rule all other operations. Get a Burbidge's boiler full size. Run two four-inch pipes, a flow and return, along the front and two ends, the top pipe four feet from the roof at front, and the bottom lying on the floor, having cemented sides to hold water occasionally; and thus lying in a kind of trough of some eighteen inches wide. If you want great heat you may even carry the flue through the house, exactly in the middle and parallel with the frontage. We dare add no more; we are now trespassing on room ill spared.

RASPBERRIES (*Philocarpus*).—The "professional gardeners" who rubbed all the buds off the raspberry canes, were guilty of a most unprofessional proceeding. We know no reason unless it be to prevent them bearing. *Strawberry seed* will "come up" anywhere if the air is mild, and the soil is kept continually moist, not wet. If such seeds are to be reared in a room with a fire, place a thin coat of moss on the hot surface until the seeds vegetate. Most plants which love a dry air will do as well in a room as in a greenhouse, provided the amount of light is sufficient. Such things, however, as orchids *must* have a damp air.

WEIGELA ROSEA (*L. M. N.*).—This will do well in the centre of your bed; but why have a shrub there at all: your bed will look better filled with flowering plants during the summer, and evergreens in pots during the winter; these latter to be removed and placed in some hidden nook of the garden during summer. Weigela Rosea requires a light dry soil, and severe pruning in winter, and then the young shoots will grow strong and flower well.

IXIA SEED (*J. V.*)—It is very likely you will get Ixia seed at Mr. Carter's 238, Holborn. The three plants you allude to are *Hepatica triloba rubra*, and *cerulea*, and *Aster alpina*.

EVERGREEN FOR POND EDGE.—*H. D. C.* has obliged us with the following good suggestion:—"I beg to suggest to the inquirer for a plant to ornament 'a large circular pond,' in the number for February 20, by naming *Gaultheria procumbens* as a dwarf plant of compact habit, and of a very attractive appearance, and easily managed in a confined border. If planted in peat earth and leaf mould equal parts, in a moist situation, it will thrive well It seldom is more than three inches high, and its procumbent habit would be desirable in a narrow border, and the effect of the scarlet berries and dark foliage would render the plant very effective in such a situation."

GUIDE COMBS (*J. B. P.*)—If worker's cells are *not* to be had, drone cells must suffice, for guide-comb of some kind *must* be used to insure the bees working upon the bars; and it is more important still that the guide-comb in the additional storing place should be *worker's-comb*. We believe that bees do not store honey in drones cells until *after* drones have been bred in them, which in the additional boxes, &c., every means are taken to prevent.

TIME OF BEES BEING TORPID (*Ibid*).—Our correspondent says—"My bees have only hybernated, or remained inactive, for about six weeks; and three stocks weighing in November last, viz., No. 1, 21lbs., has lost 7 lbs. in weight. No. 2, 26 lbs., has lost 8½ lbs. in weight. No. 3, 26 lbs., has lost 5 pounds in weight. My note book shows that they

worked, with only a few days intermission, till the 30th December, and were in full work again on 14th February instant, and the early flowers are now yielding a large supply."

Eschscholtzia compacta (*Queen Mab*).—There is an annual so named, and it has the quality agreeable to its name. It is a preferable species to the older ones. It is new, and may be had of any respectable seedsman.

Woodlice (*R. H.*).—To destroy these, place fresh bones in their tracks, and every morning, before it is light, pour boiling water upon them. Lay sliced potatoes amongst the plants, and turn them up every morning and destroy the woodlice. Keep some toads in the house, they will greedily devour them.

Orange-trees from Italy (*F. Little*).—You will obtain the prices of these by writing to Mr. E. H. Wood, Italian Warehouseman, 88, Oxford-street, or to Messrs. Barto Valleé, and Co., 21, Haymarket, London. The spring is the best time for purchasing.

Alstrœmerias, &c. (*Queen Mab*).—A. aurea pulchella and varieties may be left in the borders through the winter if protected with a covering of tan, but it is safer to take them up and pot them. *Nemophila insignis grandiflora* is a desirable variety, and quite as free a bloomer as *N. insignis*. The best blue *Penstemon* is *gentianoides*, var. *Marshalli*.

Longest Frame Cucumber (*Cottage Gardener*). That which you can most readily obtain is *Allen's Victory of Sufolk*, it is full two feet long when well grown. *Mushroom spawn*, to grow in cucumber beds in the open air, should be inserted at the end of April. Other questions next week.

Solanum Jasminoides (*A Subscriber*).—You can obtain it of any nurseryman who advertises in our columns, for about eighteen pence.

India Seeds (*A Younker*).—We hope you are young, because that is your only excuse for writing the note before us. Your other notes are unreceived. Sow the above now. They are probably not worth the trouble. Shift your *Boronia serrulata*, and let it be established in its new pot before you prune it.

Peaches, &c., Newly Planted (*Clericus*).—It is too late to prune them now; train in the branches and disbud during the summer; they will probably require but little pruning in the autumn. The *Abutilon striatum* requires no pruning. The *sulphur* mixture will not injure the buds if these are not too nearly bursting. *Matting*, as a shelter, will not draw and weaken the buds if it is taken off early in the morning.

Cheap Cottage (*E. Hannam*).—We will give you some information next week.

Cochin China Fowls (*H. B.*).—You will find these described by Mr. Copeland to-day. Hens sometimes will persist in all laying in one nest. When one sits, put her into another nest, and cover her close for a day.

Passion-flower Grafting (*Peter*).—Do this as soon as the buds are well swollen, showing the year's active growth has commenced. We know the *Negro potato* well, and we enter fully into your "pleasant remembrance of the great balls of sparkling flour which used to make their appearance on the nursery-table, looking as if some black currant juice had been thrown over them, and then been sprinkled with snow!" Have any of our readers some of this variety to dispose of?

Conservatory (*M. S. S.*).—The greatest beauty and most pleasure to you would be derived from your conservatory, and we think that its own permanent inhabitants, aided by your eighteen-feet pit, and your several frames, ought to keep it gaily furnished throughout the year. Before you build your conservatory go and see Mr. Wilson's at Stamford Hill.

Brocoli sowing (*H. N.*).—You may have a supply from October until the end of May, by sowing according to the following list:—Sow *Early Purple Cape* and *Grange's Early Cauliflower Brocoli* the second week in April and the first week in June. The produce will be fit for table during October, and until the middle of December. Sow *Green Close-headed* the first week in April. The heads will be ready in November, and until January ends. Sow *Dwarf-brown* the second week in April. It will be in production from February to end of April. Sow *Sulphur-coloured* and *Spring-white* the second week of April. Their heads will be ready during the April and May following.

Work on the Vine (*H. S.*).—Buy Errington and Johnson on *The Vine*; you can procure it from Mr. Bohn through any bookseller.

Soap-making (*W.*).—We received Mr. K.'s letter as well as yours, and have vainly endeavoured to obtain any useful information.

Sunflower-seed for Poultry (*G. Tasker*).—It is useless for you to grow this unless you grow a good breadth, say the sixteenth-part of an acre. Manure the ground *generally*; you will have seen what we said last week about raising the plants. You may raise *celery plants* on a warm border as you propose. The roots of the plants should be as uninjured as possible when they are transplanted.

Old Pear and Apple-trees (*George*).—Scrape off their bark, paint them over with a mixture of clay and urine; and have the branches grafted with any good varieties you choose. It is very likely your soil requires draining. It would be the work of years to bring the old trees into bearing without grafting them.

Mossy Meadow (*A Subscriber from the first*).—Harrow it; sow it with about half the quantities of grass seeds we directed a few weeks since for a similar soil; dress it at the same time with a cwt. of superphosphate of lime to the acre; roll it, and then *drain* your meadow, if the gravelly subsoil is a clayey gravel.

Soils (*A. B.*).—Both where thoroughly mixed together; the mixture looked like sandy peat. In this state it would do for Camellias.

Nutt's Celery Seed (*Enoucli*).—You had better write to Mr. Nutt, whose direction you will see in our last number. We dare say he would sell you a shilling's worth. In *budding* and *grafting*, the rind or bark of the scion must come in contact, edge to edge, with that of the stock, and not lap over. We usually nail in the young shoots of *Peaches* and *Nectarines* their full length, having stopped them in the autumn previously by pinching their ends. The wood should be taken out of the bud in budding, but so as not to make a hole in its centre.

Errors.—In our list of *fruits* at page 318, read *Beurre Langelier*, and *Uvedale's St. Germain*.

Ginschen Root (*R. G.*).—This is the Ginseng of the Chinese, about whose medicinal qualities many books have been written in China. It has long been, and still is, a matter of uncertainty with botanists, as to the plant, whose roots have attained to such celebrity. Panax quinquefolia, was believed for a time, to be the true source of the Ginseng, but that seems to have been a mistake, for that plant is found in North America, where no such virtues are ascribed to it; but the Americans are said to sell their roots to the Chinese, to adulterate the true Ginseng, which they say is a native of some inaccessible regions of Chinese Tartary. Meyer calls it Panax Ginseng, and says it has a sharp aromatic peculiar taste. In the *Medical Gazette*, for 1843, page 238, it is stated that the Chinese prescribe it for all diseases arising from the weakness of the body; but the Chinese, themselves, assert positively, that it is a universal remedy for all maladies; and they even go to the fabulous, and affirm that its application, if perseveringly persisted in, will renew their age, and turn old men to the vigour of youth. Such extraordinary faith in the virtues of a plant could not obtain belief, even with such people as the Chinese, if it were inert.

Name of Plant (*Jane B.*).—The flower was so shrivelled that we cannot be certain of the name of your plant, but we think it is *Bignonia Australis*. Its yellow unhealthy leaves, and buds dropping, intimate that the action of the roots is all wrong. They are either kept too cold, or too dry, probably, but unless we know your treatment of it, we cannot suggest a remedy.

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Clapham Rise, near London, by Appointment Florist to Her Majesty the Queen, and to His Majesty the King of Saxony, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS. He begs to say that this is a good season of the year to make a selection of the various kinds. Ranunculuses and Anemones should be planted immediately.

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WEEKLY CALENDAR.

W D	MARCH 18—19, 1851.	WEATHER NEAR LONDON IN 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
Tu	Elder flowers.	30.302 — 30.060	59—36	S.W.	—	22 a. 6	58 a. 5	4 0	10	9 47	72
F	Peacock screams.	30.308 — 30.268	50—40	S.W.	—	19	VI	4 47	11	9 30	73
S	Black Ants seen.	30.312 — 30.292	53—45	N.W.	—	17	2	5 28	12	9 13	74
Sun	2 SUNDAY IN LENT.	30.337 — 30.309	57—28	N.E.	—	15	3	6 2	13	8 56	75
M	ST. PATRICK.	30.305 — 30.291	59—30	N.	—	13	5	rises.	☺	8 39	76
Tu	PRINCESS LOUISA BORN, 1848.	30.159 — 30.057	49—38	W.	0.01	10	7	7 31	15	8 21	77
W	Elm flowers.	30.032 — 30.025	51—26	E.	—	8	8	8 52	16	8 3	78

We remember, many years ago, during a political contest in Essex, that
andidate of unimpeachable life and good reasoning powers, happened
have had a linen manufacturer for his father, and a wily antagonist,
o could not impeach either his character or his arguments, directed
t he should be clamoured down with a cry of "No Dowlas." This
mouring-down system is too usually adopted on all occasions; and we
re lived long enough to ascertain, that whether the clamour be raised
inst a peasant girl's virtue, or a Prime Minister's capacity; whether
inst the genius of a gardener, or the orthodoxy of a Bishop—the cla-
urers are almost invariably wrong; and whenever we have been
apted to join in the scare-whoop, we have always paused when we
ught it might be like the cry of "No Dowlas;" and when we have
: so paused, we have invariably found ourselves wrong. This was
ar more the case than when we once published, concerning SIR WIL-
AM CHAMBERS, "His Chinese Gardening was puerile in the extreme."
joined, without consideration, in the clamour raised against him by
race Walpole, Mason, and others; but a more careful examination has
ught the conviction that this also, was a "No Dowlas" cry. Let us
ke the best amends within our power, by paying a just tribute to the
rit we heedlessly depreciated. *Sir William Chambers* may be quoted
another example of one who was the architect of his own fortune. By
th a Swede, he was by descent a Scotchman, for his father, a Scotch
rchant, was, in 1726, the date of his birth, prosecuting a claim at the
edish court, for money and stores furnished to its Quixotic monarch,
arles XII. We believe that that claim was never satisfied, and that
William's father remained a man of ruined fortune, the only recom-
se being an appointment for his son, who was removed from Ripon
hool, in Yorkshire, whilst still a youth, to be supercargo of some
edish ships voyaging to China. In this employment he was engaged,
obably, no longer than one voyage; but on the insight he thus obtained
the gardening of the Chinese, he based that fiction, the publication of
ich entitles him to our notice. Upon quitting his supercargoship, he
voted himself to his favourite pursuits, designing and architecture, and
marked by talent were the published evidences of his skill, that they
edily obtained the notice of Lord Bute, whose interest procured for
a the appointment of drawing master to the future George III., then
nce of Wales. This led to more lucrative employments, among the
liest of which was the erection of Lord Besborough's villa, at Roe-
mpton, and his success in that was an introduction to many more
hitectural engagements. Upon the accession of George III., the
al grounds and buildings at Kew were placed under his care, and in
3, he published *Plans, Elevations, Sections, and Perspective Views the Gardens and Buildings at Kew, in Surrey, the seat of H. R. H. the Princess Dowager of Wales.* This work testifies that his designs
re adapted to the place, but we have no means of judging how the
ntations succeeded, so as to realize all the effects he purposed to pro-
ce. "The noble Orangery," and "the very elegant Temple of the Sun,"
hey are called by Sir W. Hooker, are the principal remnants of Sir W.
ambers' decorations of Kew Gardens—"gardens which, he justly ob-
rves, are in a situation not by any means advantageous, as it is low, and
mmands no prospects. Originally the ground was one continued dead
; the soil was in general barren, and without either wood or water.
ith so many disadvantages, it was not easy to produce anything even
erable in gardening, but princely munificence, and an able director,
re overcome all difficulties, and converted what was once a desert into
Eden." The style Sir William adopted for arranging these Gardens,
unfortunately designated "Chinese Gardening;" we say unfortu-
ely, because it is our firm opinion that if he had not called it by any
cial name, and had not published the Dissertation we shall mention
esently, his arrangement of the Kew Gardens would have been looked
on as an example, or at most, as a variety, of the English or picturesque
rdening, then so much in vogue. The work we have alluded to, ap-
ared in 1772, with the title of *A Dissertation on Oriental Gardening*.
this, under the fiction that he was describing Chinese gardening, he
reality advocated the principles which he considered should regulate
e disposition of the grounds about our residences, and those who read
rough that Dissertation, separating the rules for designing from the
scription of Chinese erections, merely introduced by him to sustain the
tion, will find that Sir William's taste and judgment in the art of
rden plotting, excelled that of most of his contemporaries. This, of
elf, was sufficient to arouse their envy, but as he adopted that most in-
licious of all roads to reformation—that which commences by pulling
wn the labours of others—he stirred these up to active hostility. If he
d been content to advocate his own views, they would have gradually
evailed, as they have since prevailed, but he preferred violent, and totally
disguised attack, and in his very preface wrote thus :—

"Is it not singular then, that an art with which a considerable part of
r enjoyments is so universally connected, should have no regular
ofessors in our quarter of the world? Upon the continent it is a col-
teral branch of the architect's employment; who, immersed in the
udy and avocations of his own profession, finds no leisure for other dis-
nctions; and, in this island, it is abandoned to kitchen-gardeners, well
illed in the culture of sallads, but little acquainted with the principles
ornamental gardening. It cannot be expected that men, uneducated,
d doomed by their condition to waste the vigour of life in hard labour,
ould ever go far in so refined, so difficult a pursuit. To this unaccount-
able want of regular masters, may, in a great measure, be ascribed the scarcity of perfect gardens. There are, indeed, very few in our part of the globe, wherein nature has been improved to the best advantage, or art employed with the soundest judgment. The gardens of Italy, France, Germany, Spain, and of all the other countries where the ancient style still prevails, are, in general, mere cities of verdure; their walks, like streets, all conducted in strait lines, diverge from different large open spaces, resembling public squares; and the hedges with which they are bordered, rise in imitation of walls, adorned with pilasters, niches, windows, and doors; or they are cut into colonades, arcades, and portico; all the detached trees are shaped like obelisks, pyramids, and vases; and all the recesses in the thickets bear the names and forms of theatres, amphitheatres, temples, banqueting-halls, ball-rooms, cabinets, and saloons. The streets and squares are well manned with statues of marble or lead, ranged in regular lines, like soldiers at a procession; which, to make them more natural, are sometimes painted in proper colours, and finely gilt. The lakes and rivers, confined by quais of hewn stone, are taught to flow in geometric order; and the cascades glide from the heights by many a succession of marble steps: not a twig is suffered to grow as nature directs; nor is a form admitted but what is scientific, and determinable by the rule or compass. In England, where this ancient style is held in detestation, and where, in opposition to the rest of the world, a new manner is universally adopted, in which no appearance of art is tolerated, our gardens differ very little from common fields, so closely is vulgar nature copied in most of them; there is generally so little variety, and so much want of judgment, in the choice of the objects, such a poverty of imagination in the contrivance, and of art in the arrangement, that these compositions rather appear the offspring of chance, than design; and a stranger is often at a loss to know whether he be walking in a common meadow, or in a pleasure ground, made and kept at a very considerable expence: he finds nothing either to delight or to amuse him; nothing to keep up his attention, or excite his curiosity; little to flatter the senses, and less to touch the passions, or gratify the understanding. At his first entrance, he sees a large green field, scattered over with a few straggling trees, and verged with a confused border of little shrubs and flowers; on farther inspection, he finds a little serpentine path, twining in regular esses amongst the shrubs of the border, upon which he is to go round, to look on one side at what he has already seen, the large green field; and on the other side at the boundary, which is never more than a few yards from him, and always obtruding upon his sight. From time to time he perceives a little seat or temple stuck up against the wall: happy in the discovery, he sits down to rest his wearied limbs, and then reels on again, cursing the line of beauty; till, spent with fatigue, half-roasted by the sun, for there is never any shade, and dying for want of entertainment, he resolves to see no more: vain resolution! there is but one path: he must either drag on to the end, or return by the tedious way he came. Such is the favourite plan of all our smaller gardens: and our larger works are only a repetition of the small ones; more green fields, more shrubberies, more serpentine walks, and more temples; like the honest batchelor's feast, which consisted in nothing but a multiplication of his own dinner; three legs of mutton and turnips, three roasted geese, and three buttered apple-pies. It would be tedious to enumerate all the errors of a false taste; but the havoc it has made in our old plantations must ever be remembered with indignation. The axe has often, in one day, laid waste the growth of several ages; and thousands of venerable plants, whole woods of them, have been swept away, to make room for a little grass, and a few American weeds. Our virtuosi have scarcely left an acre of shade, nor three trees growing in a line, from the Land's-end to the Tweed; and if their humour for devastation continues to rage much longer, there will not be a forest-tree left standing in the whole kingdom."

"He who sows the whirlwind, shall reap the storm," and Sir William enjoyed no exemption from this rule, applicable to all controversy. His *Dissertation* appearing immediately after *Mr. Mason's* poem of *The English Garden*, noticed by us at page 29, of our last volume, and containing such a sweeping condemnation of our gardening and garden designs, he ought not to have been surprised that they assailed him with his own weapons. *An heroic Epistle to Sir W. Chambers*, was published, doubtless from the pen of Mason, in which the puerilities of the Chinese gardeners are most successfully ridiculed; but these do not involve the principles advocated by Sir William—principles now generally admitted to be correct. We have no space sufficient to enter upon these in detail, but they are epitomised in this one quotation from *An Explanatory Discourse*, which he found it needful to publish, in refutation of those "united to raise a clamour" against him.

"Your servant Chet-qua has no aversion to natural gardening: but is, on the contrary, a zealous advocate in its favour, wherever there is room to expand, and work upon a great scale, or where it can conveniently, and with propriety be introduced. The style which in England has been adopted, preferable to others, is not what appears to him reprehensible; but he laments the little use you have made of your adoption, and apprehends your partiality is too excessive, while you obstinately refuse the assistance of almost every extraneous embellishment, and persist in an indiscriminate application of the same manner, upon all occasions, however opposite, or ill adapted; and often where no probability of success

appears. Natural gardening, when treated upon an extensive plan, when employed with judgment, and conducted with art, is perhaps as superior to all other sorts of culture, as heroic verse is to every other species of writing; but there are many occasions, where neither the one nor the other can, with the least propriety, be employed; where they would only serve to give a ridicule to the whole composition; and where different or less elevated modes of expression are, on all accounts, preferable."

We are not aware that Sir William was employed elsewhere as a garden designer, but he continued in extensive practice as an architect, Somerset House in the Strand, and several other mansions being erected from his designs. Among other honours he was invested with the Swedish Order of The Polar Star, was Comptroller General of Works to the King; Architect to the Queen and Princess Dowager; and Treasurer of the Royal Academy. After a long illness he died at his house in Norton-street, on the 8th of March, 1796, and was buried in Westminster Abbey. He died, says a contemporary, leaving a considerable fortune, acquired honourably, and enjoyed with hospitality, bordering on magnificence; but, what is far better, quitting life with the regret of all those with whom he had been connected, and esteemed, loved and lamented by all with whom he had intercourse, either as an artist, or as a man.

Meteorology of the Week.—From observations at Chiswick during the last 24 years, the average highest and lowest temperatures of these days is 51.1°, and 35.1°, respectively. The greatest heat, 69°, occurred on the 19th, in 1835, and the lowest cold, 16°, on the 17th, in 1845. During the time there have been 110 fine days, and 58 on which rain fell.

The time has arrived when our Horticultural Shows are commencing; and we cannot do them disservice by recommending societies to draw the attention of the *Judges* they select, to some points which are essential to be regarded for the sake of those societies' prosperity, as well as for the advancement of their general object, the improvement of gardening. In the first place, we would advise the council of every country society to inform the judge of the strength of the society's finances, that he may apportion his awards accordingly. This is but justice to the society and justice to the judge; for we have known the latter groundlessly blamed for extravagant awards, when in reality his proportionate distribution of rewards was strictly just, but he really was in total ignorance of the amount of the society's income. It is quite true that there are certain fixed prizes in all societies, but it is always in the power of the council to say our funds are in such a state, that it is advisable to award to all a lower rate of prizes than if our funds were stronger. For instance, where a society has three prizes—a silver medal, valued at 15s.; a German silver, at 10s.; and a bronze, at 5s.; it is no breach of faith to award the lower ones only, or to withhold any of them, unless extraordinary merit in the specimens exhibited forbids. But it is by forbearing from awarding extra prizes that the judge may always husband a society's resources most satisfactorily; and, therefore, if he is told that economy is desirable, it is here that he should exercise the most abstinence.

We had prepared some other notes pursuant of our theme, but we withdraw them for the present, to afford space for the following suggestions, in which we fully concur—suggestions which are from the pen of a floriculturist of good judgment and long experience:—

"A few suggestions to the managers of shows may be worth attention, and of those here given some might be published in the judge's instructions. Especially we would recommend they should be instructed, *first*, in all plant exhibitions, to consider size a secondary quality; and if the lower portions of the plant be at all bare of foliage, to consider it a great fault. *Secondly*, to look well to the training of all the plants, and to consider all props, and ties, and supports, except to climbing plants, so many blemishes, and to place them lower accordingly. *Thirdly*, to estimate duly the proportion of bloom which a plant carries, and to lower those which have too little for the size and foliage of the specimen; and not, as we have seen at country shows, to give prizes to plants five feet high, in bushel pots, with only two or three flowers to show what they were. *Fourthly*, to lower very much in the scale of prizes, or exclude altogether, all plants which are drawn and weakly; this being the strongest proof of bad gardening. *Fifthly*, to remember that in plant growing the foliage should be either close down to the pot, or raised on a single stem for a standard; the former being desirable for all shrubby plants, the latter by far the best adapted for plants of weakly or pendulous habit. Let us take, as examples, two plants of the same family. *Eriostemon buxifolium* is a splendid shrub, as strong, and as handsome, and as easily grown as the common box; but *E. cuspidatum* would require props to all the side shoots, and is best grown with a centre stem, which will require support for a time, to two feet or even eighteen inches, and then allowed to form a head; its pendulous habit is shown to the greatest advantage, and the two objects are beautiful in contrast of habit and style, independently of the difference in their foliage. *Sixthly*, gardeners ought to be able to discover what should be done with every plant to show it off to advantage; and he who fastens up a trailing plant as if it were a climber, or allows a plant to trail which ought to climb, or grows into a bush a plant naturally pendulous, or does any other act which opposes the natural habit of a plant, has only half learned his business. At the Surrey Gardens, we have seen a plant of *Æschynanthus*, which should have hung down all round the pot, tortured into a climbing plant, by tying up the branches to a kind of bird-cage, with three-fourths of the leaves exhibiting the under part only, and the two or three blooms dragged to one side, lest anybody should overlook them. On the other table, there was a *Torrenia Asiatica*, a plant quite as much a trailer, made to climb over a wire frame, with the backs of the foliage more seen than the front; and, which we consider the worst aspect of the errors, instead of being the mistakes of one man, they belonged to different cultivators. Let judges unhesitatingly reject such things at once. *Seventhly*. In cut flowers, such as *Roses*, *Dahlias*, *Pansies*, *Pinks*, *Carnations*, *Picotees*, *Verbenas*, and other subjects generally designated "florists' flowers," look to form and not to size; and never give the preference to size unless two stands are, in all other respects, equal. The Dahlia shows have begun to assume a disgusting coarseness. Judges who have either no eye to symmetry, or uniformity, or brilliancy, now too often merely look to size; and we all know that those who live in a good air, and cut in their plants, and give unlimited dressing, can always command great blooms; but there is always a corresponding coarseness which, in the eye of a connoisseur, destroys the value and the beauty of a specimen. Judges are too apt to fancy there is a great merit in monster growing, but there never was a greater mistake. There is no skill required to grow plants or flowers large; any boy can be shown how to do it in a month; and one of the best correctives to such a vulgar taste, or want of taste, which calls for monster plants and flowers, would be for the societies to limit the size. In *a stand of Dahlias*, the back row of flowers should not exceed five inches in diameter, the middle row not more than four inches and a half, and the front not more than four. Plants or pots to be shown in collection should not exceed a certain height and breadth, nor occupy a pot above a certain size—single specimens only excepted. There are some cultivators who fancy that all the merit of cultivation lays in the size they can bring anything to; and last year's exhibitions at the Park and Chiswick, and elsewhere, were conspicuous for some of the large, ugly, ill-grown specimens, with bare legs (as carefully concealed as possible with plants in front), and awkward straggling growth; some past bloom, others half bloomed, nothing but the size to pass them; but such is the vitiated taste, that it did carry them through against better plants and infinitely more meritorious productions. These remarks may be resumed, but we hope the managers of shows in the country will set an example to those of the metropolis, and begin to correct a most prevailing error—the error of mistaking in what the real merit of gardening consists—the error of

fancying that the size of a plant or flower exhibits any proof of skill, while, unless accompanied by symmetry, compactness, uniformity, and complete health, it only shows the coarse notions of the exhibitor."

GARDENING GOSSIP.

Some people are sadly offended at the diagrams of perfect *Carnations and Picotees;* but a writer in a country work misunderstands the question altogether. He discovers, in the *Gardener's Magazine of Botany*, a diagram of a flower that nature never can produce, and takes some pains to ridicule it on that account. It is very well understood by many first-rate florists, that the entire merit of "the properties of flowers," so called, is, that they set the florist to work in a right way. We are quite certain that the model laid down will not easily be equalled; but there can be no mistake in two facts, *first*, that if they were, it would be impossible to excel them; and, *secondly*, that those which came nearest in qualities would be the best. It is merely labour in vain to tell us the thing is impossible, because the properties were laid down purposely as a standard which could not be reached; but nobody can deny that those which come nearest the model are superior. Old florists, who pretended to give the criterion of a good flower, founded the excellence on some flower then considered the best; but what was the effect? There was no idea entertained of beating the best, because nobody knew what would make them better. Many of those, however, then considered fine, have been thrown out of cultivation by some which excel them in all the properties. Some florists would limit the number of petals,—a convenient mode of keeping, or trying to keep, some double varieties in cultivation.

The *Society for the Promotion of Floriculture* held their Kingsland Meeting on Tuesday, the 18th ult.; but the business was merely routine—electing judges and other officers, for which there was a strong competition; many eminently qualified having been proposed, though only six were elected. The severity of the judgment on new flowers in this Society has rendered it anything but popular among those who generally contrive to send out five times too many new things.

What is the meaning of hardy? is a question often asked, and for good reasons. Some answer, "A plant that will live through our winters." But there are many subjects which do not absolutely die, but all their spring growth is cut back, their bloom destroyed, and the plant so damaged as to want all the summer to recruit their health. *Deutzia scabra* has for three springs been cut back, the effect of which was to destroy the bloom. Some of Waterer's *Rhododendrons*, in the open air, flower so early as always to fall a sacrifice. We rather lean to the opinion, that those plants which stand our winter and spring frosts, without losing their beauty, are alone entitled to the term hardy.

A *Rose Girdle* was exhibited at the Horticultural Society's Rooms, at a recent meeting; and it is just possible it may be a favourite. It is a zinc band, which goes round the rose and the stake; and at the ends where they meet, a nut and screw holds them fast. The band is used for a label. It is only necessary to rub on a coating of white paint, as we do on wood, and write the name with a pencil. A small *plant label for pots*, which is formed a little like a fiddle-head teaspoon handle, was also worth remarking, from its cheapness; they are retailed at two shillings per hundred. We have seen painted zinc, on which the paint and the name were as plain as when it was written, and it had been in use six years. It is far better to use paint and a pencil, than indelible ink, for it is not half the trouble; in fact, it is no more trouble than writing on wood, and it would last twenty years. E. Y.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

Globe-headed Primrose (*Primula capitata*).—*Botanical Magazine*, t. 4550.—Our favourite Primeworts were named as a genus by Linnæus, from the diminutive of *primus*, the first or earliest; and a more expressive title is seldom to be met with than *Primula*, which, in its lowest and humblest forms, usher in and welcome the early spring in the northern and colder parts of the globe. At times, flowering from beneath a canopy of snow, as *Douglassia* on the Rocky Mountains, and thence down to the marshes and water-brooks in the centre of the vallies, and to the level of the ocean, in hedges or in groves, on the sunny side of the Alpine hill, ridge, and bank, and at other times on the bleak side of the barren heath. But the poetry of their existence must rather be gathered from the child of nature in the infant schools—The lisping babe coming in with a tiny handful of early Primeworts, collected by its own industry and prompted to the pleasant task by the pure voice of nature within him—is more of a true lover of nature than either bard, or minstrel, or botanist. As objects for the care of the cultivator, Primeworts rank high among those that are most highly prized by the florist, both on account of

their easy management, even in his improved forms, and being the earliest harbingers of spring; and the country herbalist collects their flowers for his pleasant soporific wine and sedative draughts.

Primula capitata, like others of its kind, is included in the *Natural Order* of *Primeworts*, and in 5-*Pentandria* 1-*Monogynia* of Linnæus. It is a hardy perennial, a native of gravelly soil in the Sikkin Himalaya, where it was gathered by Dr. Hooker in the June of 1849, at an elevation of 10,000 feet above the level of the sea. It flowered in Kew Gardens upon a rock-border in October.

Root, or *rhizoma*, a roundish, rough, brown tuber; *leaves* all springing from the root, averaging four inches long, usual primrose-leaf shape, tooth-edged, mealy beneath, footstalks short and reddish. *Flowers* on a mealy stem a foot long, densely collected in a globular head; corolla with a white mealy tube, but limb five-lobed, deep purple above and paler beneath. Water should be applied in the saucer of the pot in which it is grown, and like many other natives of great elevations, it seems to require the shelter of a cold frame in winter.

Pointed-petaled Onion (*Allium acuminatum*).—*Paxton's Flower Garden*, i. 129.—Many of our readers, when they look upon this member of the Natural Order of *Lilyworts*, and of 6-*Hexandria* 1-*Monogynia* of Linnæus, will have no other associations with its form but those particularised by Dean Swift:—

> "This is every cook's opinion—
> No savoury dish without an onion:
> But lest your kissing should be spoil'd,
> Your onions must be throughly boil'd."

Those who know none of the genus but the Onion, Garlic, Leek, and others which are our usual kitchen-garden tenants, may be excused for looking thus upon them as ill-favoured both in form and fume; but there are many of their sisterhood deserving a much pleasanter character. For example, there are the Moly (*A. moly*), the sweet-scented (*A. fragrans*), and Victors (*A. Victorialis*), all worthy to rank with such bulbous flowers as the Jonquil and Hyacinth; and first among these beauties of the Onion tribe, is the species now introduced to our notice.

Allium acuminatum is about a foot high, and probably hardy, if properly stored in winter, being a native of California, whence it was sent by Mr. Hartweg, and flowered in a greenhouse at Chiswick Gardens during the spring of 1850. Its stem, like the Leek, is leafy at the base; *leaves* rush-like, and as long as the flower-stem; *flowers* in loose umbels, sepals and petals sharp-pointed, transparent, but richly coloured at the points with crimson; seeds mostly unfertile, black, with a soft skin. Mr. Paxton says, "Its gay flowers can scarcely be regarded as inferior in beauty to the Guernsey Lily itself, and they are far less fugitive."—B. J.

THE FRUIT-GARDEN.

Pines.—Ever since the pine-apple came into general culture, the end of February and up to the middle of March has been the period for a close examination and re-arrangement of the whole stock. Now it is fit that beginners should ask why? For in these stirring and highly progressive times, they should not rest content with a rule without a reason; that is to say, no mere rule of practice should be submitted to, however high the authority, without first subjecting it to the test of those recognised principles, which the investigations of science have proved to be interwoven with the well-being of the plant in question.

Although the pine-apple, as to its natural habits, is not *decidedly* inclined to a dormant state, yet such is in a great degree forced upon it in our northern climes. Light is the only circumstance that cannot be artificially created. Heat can be furnished to any amount; moisture also, and a circulation of air; but light—solar light—is beyond our reach. We have before remarked in these pages that a certain amount of light is indispensable to high culture; all advances in growth attempted without the necessary amount of this, the great horticultural elixir, only tends to produce weakness, and that condition of growth which gardeners term "drawn."

By the early part of November, therefore, all good gardeners have brought their Pine stock into a state of comparative repose, as far as concerns the elongation of the plant. Fruiting pines, nevertheless, will continue to elaborate juices, and to perfect their already formed and blossomed fruit, in spite of dark days, albeit at some sacrifice in point of flavour. Now, by the end of February, the bottom heats, if of fermenting materials, will become much declined, not only in their present amount of temperature, but in the prospective chances. The tan or other material becomes husky, and unequal in moisture; the drip may have injuriously penetrated some portions, whilst other parts, near the heating apparatus, will have become dried. It is almost superfluous to add, that most of these evils are avoided by the use of a permanent source of bottom heat, as the hot-water tank; and to this may be added, another and very important matter with pines. There is then no necessity for disturbing the plants as with fermenting materials, and it is well known that the pine is very averse to being disturbed; the latter circumstance generally involving broken members, whether of root or foliage.

It not unfrequently happens, too, that during the quarter of a year which the pine passes in a state of comparative rest, the stock becomes unequally classed. Some which were scarcely expected to do so, have shown fruit within the period; some kinds of faster growth than others, and less affected by low temperature, have increased so much in bulk, as to need removal out of the way of their humbler neighbours; hence a re-arrangement, regulated by height, becomes desirable. Added to all this, *re-potting*, or shifting, becomes absolutely necessary with many, perhaps most of them; and this

is a very important affair. Having thus shown the tyro in pines, the position of the question at the end of February, we cannot do better than offer some advice about potting, for it is necessary that this be done in such a way as that the soil they are placed in may remain comparatively fresh, in regard of its organic texture, until the fruit is ripe; to effect this, fresh and turfy soils should be resorted to, coupled with the most careful drainage.

We stay not here to attempt to settle the difference (as to *soils*) betwixt Tweedledum and Tweedledee, personages who, with all their altercations, have never fairly brought their quarrel to a close; and we cannot, therefore, report progress. This much is well known, a good turfy loam, about halfway between what is termed stiff loam and light loam, is complete in itself for the culture of first-rate pines. Such in our opinion is best, if procured in the September previous to the spring shifting, and piled up in a sharp and narrow ridge in the compost yard, taking care that no rains are permitted to enter. Thus stored up for a few months, it will chop down with the spade most readily, and plenty of this kind of labour will bring it into a state of division sufficient for the purpose, without resorting to the sieve or riddle; for if we used the latter, it should be to separate and *reject* the mere earth which is liberated in the act of chopping. The spade should be applied until scarcely a lump remained larger than a pigeon's egg. The size to which the material is reduced, however, should be regulated somewhat by the size of the plants to be shifted; for in the last shift—that is to say, into the fruiting pots—very coarse pieces of turfy materials may be thrust here and there, all round the ball of earth, as the filling up proceeds.

Most cultivators use manure of some kind with the loam, and we think that to the extent of about a fifth part of the mixture it is good practice, and probably nothing is better than the old linings applied to hot-beds of the former year; or even the half-decayed beds themselves, especially if formed of dung and tree leaves mixed, for the latter longer retain their organic character, and this is the point we would aim at. In fact, the kind of material and potting which a first-rate orchid grower would use for what he terms his ground orchids, will admirably suit pines in general. Therefore our readers may with much benefit refer to our highly practical coadjutor, Mr. Appleby, who has cultivated the pine, as well as the orchideous tribes, in his day; and whose papers in the back numbers, bearing on this subject, may be consulted with no small profit.

Such a mixture then, well stirred up and blended, will be complete for the culture of pines in general; but as the watering of pines is by no means an unimportant item in their culture, and as by over-watering (combined by an unlucky amount of cloudy and dark weather, which sometimes follows this process) the roots may become inactive for awhile through stagnant moisture, it is well to blend some material of an indestructible character (and one that possesses very low absorbing powers) amongst the compost. This facilitates the discharge of moisture, by preventing an undue adhesion or coherance of the particles of soil, and this by a double action, ensures the free egress of moisture, and by consequence a ready admission of the air, that great promoter of the vital forces in the roots. Indeed, it would scarcely be unsound analogy to compare a plant in a pot water logged to a fish in a basin frozen all over. No better material can be found for this purpose than *charcoal*, which may vary in size from a pea to that of a large bean. Such may form a fifth part of the compost before alluded to, and most cultivators add a little sand.

And now for *the potting* process, which we must detail for the sake of young beginners. We have alluded, in previous papers, to watering requisite to plants with hard balls. The pine stock, therefore, should be looked over carefully a couple or three days previously, and those which are *really dry* should receive a liberal watering of tepid liquid manure. Those, however, which are in the least moist, will by no means require it; especially such as the *Black Jamaicas*, for they root much quicker in the new soil when the roots are somewhat dry than if wet; and, indeed, in the latter case, will "burn" much sooner with the least excess of warmth. We advise in all cases liberal shifts. Plants which were suckers any time during the last summer, and which had become established in seven-inch pots, may be shifted into pots two sizes larger, and thence, in three or four months afterwards, into their fruiting pots; indeed, where there is a tank heat, and room to spare, we would shift them at once into their fruiting pots. The compost being ready, and of course in a mellow and somewhat dry state, and the pots at hand, the business may proceed. Drainage materials must be liberally provided in the form of roughly broken crocks, to cover the hole in the pot, and some pounded material (from which all the mere dust is carefully rejected) to cover the crocks; the latter material may be composed of equal parts pounded crocks, charcoal pounded, and some coarse boiled bones or oyster shells roughly pounded. This may be subjected to a riddle of half-inch mesh, and all that comes through the riddle may be added to the general compost. The rough crocks being placed in such a way, that two or three bold outlets for the escape of moisture and the free ascent of bottom heat are formed, the whole may be cased over with the pounded material. In all cases we would have about one-sixth in depth of the pot occupied by the drainage; this done, let a few of the turfy lumps amongst the compost be strewed over the whole, or if such will throw the ball too high, a little dead moss placed on the drainage; and now the ball of the plant must be placed, suffering none of the smaller portions of the compost to intervene between the ball and the crocks. The ball should in all cases be about one-sixth of the depth of the pot, below the level of the rim.

As soon as the plant is turned out, the ball should be examined, and any loose or exhausted soil may be suffered to fall away, and any mere drainage material liberated carefully. Let us, however, protest against the least disturbance to the roots. If some of the old drainage does not at once loosen, let it go with the ball into the new pot. And now the process of filling up takes place; and about this there needs little ceremony, all that is needed being to continue throwing the rough or turfy lumps *regularly* here and there continually whilst filling in the compost. As soon as the filling has thus reached the level of the ball of roots, let a casing of the finer materials, of an inch or two in thickness, be coated all over the top; this serves to control the sudden influences of an occasional dry atmosphere. And here let us protest against any *thumping of the pot* on the potting bench; a kind of practice in which our old practitioners were great adepts, and which process merely serves to undo all that has been done, to nullify by one stupid act all the pains taken over the openness of the soil. Sometimes it becomes necessary to use a stick to cause the compost to descend, not to ram it tight with; we should, however, rather recommend such liberal shifts as precluded the necessity of stick-work, which often does serious mischief.

We need hardly remind the pine cultivator of the necessity of having a renewed bottom warmth duly provided before he sets to work; or if structures are scarce, and the pots must remain out whilst his bed is preparing, let the operator place them securely on the floor of some house, where a temperature of 70° can be insured to them until removed to their destination. Any dark place will do, the temperature is the only

binding point. Those which may happen to have bad roots may at once be disrooted, placed in smaller pots, and classed with young plants, or in a private hospital. After replunging they may be syringed over, but no water applied to the roots for three weeks of such as *Queens, Providence*, &c., and not for at least double that time to such shy rooters as the *Jamaica*. A moist atmosphere is the great desideratum, with a very moderate amount of ventilation, and a slight shading for a few hours on very bright days. Bottom heat 80°; atmospheric heat 70° day, 60° night, rising to 85° in sunshine. R. ERRINGTON.

THE FLOWER-GARDEN.

FLOWER-BEDS.—The chief portion of what relates to this part of our work is referred to me, and all the letters asking advice about beds and bedding-plants pass through my hands. Month after month, and sometimes weekly, for the last eighteen months, I have declined to undertake the responsibility of recommending the kinds of plants that one should plant in a given set of beds, and as often assigned the reasons why I did not do so; yet I am besieged, week after week, by such requests, and this week I am threatened with—I know not what—punishment, if I do not instantly plant ten beds for a correspondent, who, in all likelihood, would see cause to differ with me before the first of them was planted, if I made the attempt. Lately I have seen nearly a hundred plans of flower-gardens, and the way they were planted last season, and not two of them were planted alike, yet on the whole they were very well planted. No two of any profession will suggest exactly the same arrangement, and if they did a third party would immediately object to some of the details, and it is more likely to be so in fancy gardening than in almost anything else. Hence arises the reason why public writers on gardening, set their faces against the hopeless task. In matters of taste there is no standard rule to appeal to in case of difference of opinion, therefore we must all choose for ourselves; and to enable us to do so in flower-gardening all that I can do is to recommend all such plants as I know, or hear of, that are suitable for the purpose; give their heights, colours, and treatment, as I have hitherto done, am doing, and will continue to do, as long as I am in harness. The *arranging* of these materials I must leave to individual choice. A new subscriber wishes for what has been said from the beginning of the work, and if old subscribers would submit to have the same dishes over again, our task would be light indeed. Nevertheless, I shall run over the heads of what I have already said as opportunity occurs; but I must repeat once for all, and thus prominently, that it is waste of time to ask me, or any other public writer in our line, to plant flower-gardens for any one.

The editor of a gardening periodical sent me two packets of seeds the other day, of an entirely new plant for bedding out.—Good news this. In his letter he said, "As I perceive you are labouring under a kind of *Campanula-phobia*, I take the opportunity of sending you seeds of a new species, which I think will put your pet (*Campanula carpatica alba*) out of joint. It is quite new, never having been in the country before, and I have no doubt will prove a first-rate thing." This new *Campanula* is a hardy, or half-hardy perennial from the Azores, and is called *Vidalii* or *Vidal's Bell-flower*, grows erect, two feet high, and branches out bushy, has white flowers, which continue in succession from June to September. It is also a fit subject for pot cultivation or a greenhouse, according to the account given of it by a botanist (Hewitt C. Watson, Esq.), who has lately described the plants of the Azores. The seeds for pot culture should be sown about April, and for bedding out not till July, and to be put into the beds the May following. Campanulas are certainly very good things when well managed, and I hope this new addition to them will turn out what is said of it. Seeds of *Campanulas, Lobelias, Calceolarias, Portulaccas*, and of a great number of soft-wooded plants like them; and of *Rhododendrons, Heaths, Epacrises*, and others among the firm-wooded tribes, to give them all the chances of good gardening, ought to be sown differently from the more bulky kinds of seeds, and as we are now entered on the safest period of the spring to begin the *sowing of seeds* generally, a word in season may help on our young beginners, as well as remind the more experienced, that attention to small things should not be lost sight of.

In the first place, it is a common error to suppose that particular kinds of earths, or composts, are essential for particular kinds of seeds. "What kind of soil should I use for sowing such and such seeds in?" is a common question; yet few gardeners use more than two kinds for sowing all kinds of seeds in; peat, reduced more or less, for the seeds of American or peat-earth plants, as the Rhododendrons, and there is not a seed in the catalogues which will not come up as freely in peat and sand as in any other compost, and do as well afterwards; but the small seeds of American plants must have peat; they will not do well in the poorest and most reduced loams under pot and frame management. All other seeds, be they small or large, will vegetate and do well in very light sandy loam, and if the loam is sandy naturally it is better for small seeds than the best mixture of loam and sand any of us make; therefore, for all flower-garden seeds I would choose light sandy soil, or make it light by adding sand to it. "But how much sand to a given quantity of soil or loam?" for I always use the two words as having the same meaning. No gardener can tell unless he sees the loam; all depends on the quantity of sand already in the soil; all that experience can suggest is that it is safer to have too much sand than too little of it.

To begin with the smallest class of seeds: part of this sandy loam must be sifted very fine, and if an inch of this fine soil is under the seeds it will be quite enough, indeed much better than if the pot or pan was filled with it; any common coarse soil will do to fill the rest of the pot with over a good drainage; and all pots, pans, or boxes for sowing these seeds in ought to be nearly full, as if but half an inch of empty space is left for watering the young brood, and an inexperienced hand is allowed to water, the pot is sure to get too much water, and perhaps a fine promising crop is destroyed in the seed-leaf, therefore it is the safest plan to have the seed-pot nearly full, and to be well watered before the small seeds are sown; well watering means that every particle of the soil should receive some. If very small seeds were first sown and then watered in this way, the very thin covering over them would be disturbed, and perhaps the seeds themselves be washed to one side of the pot, and when they vegetated be so thick together as no one could handle them, and if one of them damped whole patches of them would get moulded before the next morning.

To guard against this *damping off* it is best to sow the small seeds thinly. If the seed-pots are watered an hour before the seeds are sown, all the better; then take the seed with the forefinger and thumb and sow it very gently, keeping the eye on the surface of the pot all the time to see that the seeds are properly distributed; there are other ways, but this is the safest of them all for young beginners. It is a good plan to put down the seeds gently so as to bed them in the moist surface; this can be done with the bottom of a small pot that is clean, and not too dry nor too wet, as in either case the seeds would be apt to stick to the bottom. In nursery and large gardens where the sower has much to do, he

presses down the seeds with a piece of circular wood having a peg in the centre for a handle. When the surface is thus made smooth, a little of the sifted soil is put on, just enough to put the seeds out of sight and no more, and many gardeners never cover such seeds at all, but rest satisfied with pressing them on the surface, then put them into a hot-bed and lay a covering of old newspapers over a lot of pots standing together, and it often happens that the pots need no water till after the seeds have sprouted. The paper covering is a good contrivance at all times; keeping off the sun, drips from the glass, and maintaining an uniform damp growing atmosphere about the seeds. After the first three or four days, the pots must be looked to every morning and evening, and as soon as any of the seeds begin to show a leaf, that pot should be removed from under the paper, and if the seeds are at all of a hardy nature, the pot must be removed from the hot-bed to a cooler place. When one has a pot of very rare hardy or half-hardy seeds at this critical stage, the usual way is to remove it to a close cold frame or the inside front of a greenhouse, and place a hand-glass over it; if the weather is fine, and the sun comes out strong, it is customary to place a sheet of white paper or a newspaper over the hand-glass from nine or ten o'clock in the morning till the sun gets well round in the afternoon; but it is never a good plan to keep little delicate seedlings longer in the dark than one can help. In places where a large number of seed-pots are to be looked after, a front shelf in a greenhouse or vinery is cleaned and put apart for this nursing stage, and then nine or ten inches of the bottom of the glass along the whole front is painted with lime and water with a whitewash brush; no other shading is necessary, and this subdued light seems to agree with all young things. This is exactly the way we do here; but with the hand-glass system one side of it could be so painted, which would lessen the work and the anxiety of the sower. There is nothing so bad as leaving seedlings in a hot-bed after they begin to draw, or grow weak, and few things are more dangerous than taking them out and exposing them suddenly to cold air; very dry atmosphere, or much sunlight, and the hand-glass or the smeared front glass, or a cold pit that is not damp nor too deep, are the usual modes of getting over the difficulty.

Sowing seeds generally.—It will also be sufficient to have an inch or rather more of the best soil on the top, and the largest *Lupine* seeds need not be covered more than a half-inch thick, and from that down to one-eighth of an inch, according to the sizes of the seeds, will be quite sufficient, and for them the pots may be watered after the seeds are covered.

From this time to the middle of April a hot-bed is the best place to get up seedlings of all pot plants, and where a hot-bed is not at hand, the closer the seed-pots are kept the better till the seedlings are up and on the stage of a greenhouse; a covering of an old newspaper or a hand-glass will much assist the sprouting. One great error in managing such pots is to allow them to get suddenly dry, and then to be obliged to deluge them with water; and so it is with pots of *cuttings;* a uniform temperature and absence from strong sun-light, and from a dry parching atmosphere, are as essential for young cuttings as for seedlings, and both ought to be transplanted into other pots as soon as they are fit for the change, particularly seedlings, and that is one of the chief reasons for saying that an inch of good compost is sufficient for the top of a seed-pot. Indeed, it is a question if seedlings derive much benefit for the first fortnight or three weeks from the soil at all; for if they did, the seeds of every family would prefer that kind of soil which the full-grown plant would prefer, and that we know is not at all the case.

D. Beaton.

THE ROSARY.

Pruning and Protecting Roses.—No rule is without exceptions; so it is said. Rules in gardening, however good, must be varied with the seasons. As a general principle, hardy roses should be pruned at the end of autumn. Why? Because the growth that ensues during winter, will concentrate its strength in the buds left, and they will break stronger in consequence. Quite right; if we have a winter, such as we generally have, when but little growth takes place until March and April. But now, in this the beginning of March, growth is as forward as we have seen it in the beginning and middle of April; and does not the advocate of spring, and *late spring* pruning, rise in his stirrups, and tantalisingly point to your young shoots, and ask where they will be if *March*, in a surly mood, should yet send a ten or fifteen degrees frost, without a snow wreath as a protecting mantle? He knows and feels that he is right for once; he may have young shoots longer than yours, but what cares he, the frost may take them and welcome, for he must cut them off at any rate, and there are plenty of buds nearer the base, that are not yet bursting, and which will not be influenced by frost; and ten to one but the events of this year will be duly chronicled, and the spring-pruning of the rose be incontrovertibly established. But supposing that we should have no severe frost, then the advantages of autumn pruning will be seen in stronger shoots and earlier blooms. As that, however, is more to be desired than expected, it is best to be prepared. Laurel branches, and spruce fir branches, will prevent any injury unless in extreme cases, and if stuck or fastened thinly over the buds and shoots, it will help to retard them in fine weather, as well as protect them when stormy. Moss may be packed among the stems, and a few barrowfuls of it slightly shaken over them, with a few extra branches, would save a great number, even in severe weather, from all harm. Of course, even more attention will be necessary for the Tea, the tender China, and the Bourbon roses. These we generally prune in the end of March or beginning of April. R. F.

GREENHOUSE AND WINDOW GARDENING.

Greenhouse Annuals, to be Grown in Summer with the Assistance of a Hotbed.—So long as the mind is constituted as it is, anything approaching a stereotyped sameness of opinion will be as impossible as it would be undesirable. We never hope for the agreement of monotonous sameness, but we do hope for the harmony which springs from unity in diversity. To that point in the love of plants and gardening, the readers of this work are fast tending, if the enquiries of correspondents are to be taken as a test of general wishes and aspirations. There is no longer the necessity felt for having certain plants because they are *fashionable*, nor yet for discarding others really beautiful because they are "*so common*." People somehow have begun to feel that, instead of blindly acquiescing, they are quite competent to form an opinion of what is beautiful and pleasing. The love of the beautiful, instead of being contracted, is thus continually augmented in the range of its operations. The number of rivulets increases the body of the stream. Even he who cultivates with a keen relish a particular race of plants, is anything but insensible to the attractions of a different family, growing in his neighbour's garden, on the other side of the dwarf separating wall. If they had grown the same kind of plants, there would have been the excitement of rivalry, but there would have been a want of that superior delight which arises from contemplating fresh and diversified scenes of loveliness. The great

drawback in most of the little gardens in a neighbourhood is, that one reflects too much the character of the other, whilst, in many cases, too many things are attempted to warrant very perfect success in any. Had we any influence in forming the tastes of such a neighbourhood, we should implant a strong love for gardening pursuits, because convinced we should be opening one pathway to happiness; but that done, we should leave, nay encourage, every household to carry out their own ideas of the beautiful and the desirable. We should thus obtain beauty in diversity instead of sameness, for we should trust to this love of gardening to break down the stiffness of our national character, and to create the desire of rendering our gardens not only pleasing to ourselves, but a source of interest and instruction to others. By growing only a few things, they would be well grown, and when at the zenith of their beauty, we would have every neighbour to visit and see them, and then we would see all their splendid things in turn. What a fund of rational enjoyment, of neighbourly feeling, of increased admiration of vegetable beauty, would thus be created!

These thoughts have been suggested by the heading of our article to-day, owing to inquiries about annuals that could be raised for a greenhouse with the assistance of a hotbed. Some of the most splendid things, for instance *Balsams*, which, when well-grown, are truly gorgeous, have been set aside for novelties, such as the *Achimenes*, which, though beautiful, we do not consider equal in splendour to the old Balsam. Now supposing that in two small greenhouses one was to contain Balsams in summer chiefly, and the other Achimenes chiefly, both families ought to be better managed than if a general mixture was grown. In treating of the annuals suitable for this purpose, we hardly know where to begin or where to end, as many that were at one time kept in the greenhouse, have been found to do equally well in the open garden after June. I shall merely instance a few of the most striking, with an outline of their culture, premising that the seeds of all may be sown in March.

Balsamina hortensis (Garden Balsam).—These as soon as three inches in height, should be potted off into small pots, and plunged again in the hotbed; the temperature ranging from 60° to 80° at bottom, and from 50° to 70° top-heat, with abundance of air. Similar treatment should be given, never allowing the roots to get matted until they are in eight or twelve-inch pots, but shifting them regularly. In these latter pots allow them to bloom. Use light sandy loam enriched with leaf-mould at first; towards the last shifting, use equal portions of rotten dung, free from worms, and sweet fibry loam, and towards the last plenty of manure-water. By this means the plants will get to a great size, and be nearly as wide as they are high, if plenty of room and air have been given to them. Another mode where room is limited, and fine bloom is more thought of than size of plants, is to stunt the plants from want of room after they have been put into four or five-inch pots until they show flower, then choose the best, and discard the others. From the plants kept, pick out every flower-bud, pot and encourage by every possible means, giving no check to encourage flowering until the plant is about as large as you wish it to be. Again, some people instead of having a stocky shrubby-like plant, would prefer those with scarcely any branches, but a tall straight stem, and that furnished from top to bottom with large flowers, and thus they certainly look very beautiful. To secure this, keep the plants rather thick, and after the second or third shifting, keep the glass lights rather close, but admit plenty of air beneath the frame. To keep a succession for the house, sow in the middle of April. There are several other Balsaminas, such as *latifolia*, with blush reddish flowers, that makes a very pretty flowering plant, but its flowers are single. The double ones should be kept in a frame or pit until they are in bloom.

Brachycome iberidifolia. A low growing blue and white aster-like plant, requires to be well drained, and grown in light sandy soil; is rather tender for the flower-garden, unless in good situations.

Browallia elata. A Figwort, allied to Salpiglossis, but very different in habit; and with small blue and white flowers, produced in dense abundance. The growth is compact and shrubby. Treatment similar to the Balsam; but after it is once up and potted, it neither requires so much trouble as respects temperature or air.

Canna indica and other Indian-shots, with scarlet, orange, and red flowers. Though properly speaking perennials, yet they are so far annuals as to flower well in the greenhouse if sown early in March in such a hotbed, and returned to it after one or two pottings. Rich fibry loam.

Calandrinia grandiflora, purple, and *discolor*, rose-coloured; are rather tender to be treated as half hardy annuals. Rich sandy soil, with a little lime rubbish; and after being potted a time or two, may be removed from the frame to a light open place in the greenhouse. They must be well drained; for being like all the Purslanes, succulent, any redundancy of water soon rots them.

Celosia cristata—Cockscomb. Of this there are numbers of shades of yellow, red, and crimson; the latter being the most admired. This requires even more heat and attention than the Balsam, and that attention must be bestowed until the comb is full grown. With the exception of keeping the atmosphere warmer and moister, similar treatment to the Balsam may be given, especially when large plants are desired. When large well-shaped combs are wanted, on extremely dwarf plants, the plants are stunted, after being potted in very small pots, until the combs show; all the best broad ones are kept, and the loose and pointed ones rejected. The roots if at all matted are gently disentangled, as another shift is given; and then everything is done to encourage growth by heat and moisture, rich open soil, and frequent shiftings; the growth by these means being thrown into the comb. Those who are very particular as respects *dwarfness*, cut off the small comb with a few leaves, and strike it in a small pot, in a strong bottom heat, *under a bell-glass.*

Cleome speciosissima, a pretty rose-coloured thing. Treatment similiar to Browallia.

Gomphrena globosa, Globe Amaranth. Splendid things, with their red and white balls of flowers; require similar treatment to the Cockscomb; must have the assistance of the bed until several times shifted, and instead of dung, they like a little peat blended with the sandy loam.

Ipomœa rubra cœrulea. There are many others of these Convolvulus plants, such as *Bona nox*, *Quamoclit*, &c.; but the one named is queen of all for beauty. Pot it in loam and peat when a few inches high. Let it have its last shifting, adding a little leaf-mould, sand, and charcoal, in June; remove it to the greenhouse shortly after, and either train it round a trellis, or allow it to run rampant up the rafters.

Lobelia gracilis, *grandiflora*, *ramosa*, &c.; all pretty blue things growing a few inches in height; but answering equally well for flower-gardens.

Maurandya Barclayana, purple; *Hendersoni*, pink, &c.; good for trellises or rafters. Seedlings do not do much good out of doors.

Mesembryanthemum tricolor, *glabrum*, &c.; pretty dwarf things, which will also do on sheltered places out of doors. Should be placed on the front shelf.

Mimosa sensitiva. The Sensitive Plant should receive as much heat, &c., as the Cockscomb until it is some size; sandy loam and peat.

Portulacca Gilliesii, Thellusonii, splendens, &c.; beautiful little things with large crimson and scarlet flowers, which, though they *exist* in summer out of doors, seldom have the beauty they possess on the front shelf of a greenhouse. They require to be grown in peat and sandy loam, with a good proportion of broken bricks or lime rubbish.

Rhodanthe Manglesii, requires similar treatment, substituting charcoal for lime rubbish, and a fair supply of water; the Portulacca requires very little in comparison with most plants.

Thunbergia alata, leucantha, aurantiaca, &c., with yellow, white, and orange flowers. This is a most beautiful group. The plants should be potted off, and at least once again before being removed from the hotbed to the greenhouse. A strong heat is necessary to bring up the seeds. In addition to plunging the seed pot, it is advisable to place a square of glass over it. This is a good plan for all small seeds. Sandy peat and loam are the best for the first shifts; but afterwards add a portion of rotten dung and lime rubbish, with a little charcoal. The great thing is to keep down red spiders; and for this purpose the syringe should be freely used, and fumes of flowers of sulphur from a hot-water plate. The plants may either be trained to a trellis, or allowed to scramble over a branch, or the top of a young tree.

Clintonia pulchella is a beautiful thing that should go side by side with the little Lobelias.

The following, though not annuals, will blow well in summer and autumn in the greenhouse, if sown in such a hotbed:—*Fuchsia*, especially the *fulgens* branch; *Lophospermum*, especially the dwarfer kinds; *Penstemons*, all the frame varieties; *Trachelium cœruleum; Salvia*, such as *fulgens*; and the beautiful *patens*, and many annuals, which, though often grown in the flower-garden, are always richer and more brilliant when protected by an airy greenhouse, such as *Salpiglossis* and *Schizanthus*, &c.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

Franciscea confertiflora (Crowded flowered F.); South America. 5s.—This is a species lately introduced, and promises to be useful. The foliage is large, of a dark glossy green, and the branches are thickly covered with them. As far as we have had experience of it, it appears to be an evergreen. The flowers are produced towards the ends of the young branches in considerable numbers; they are larger than any other species excepting, perhaps, *F. latifolia*, and they are quite equal in size to that fine species. The colour when they first open is bluish purple, gradually changing, as the flowers grow older, to white. It is a very desirable plant.

F. eximia (Noble F.); South America. 15s.—Introduced to Pine Apple Place Nursery from the continent. The continental nurserymen speak highly of this species; but we have not yet flowered it, so cannot positively describe its good qualities. The foliage is as large as the preceding species, and is sufficiently attractive. It is covered with a kind of silvery down which renders it interesting and handsome.

Soil.—The compost we have found to suit is turfy loam, peat mould, and vegetable earth, formed of decomposed tree leaves, in equal parts, with a fair admixture of sand to render it light and porous.

Summer Culture.—Supposing a young plant in March to be in a 48, or five-inch pot, place some of the compost well mixed, but not sifted, into a warm shed, or some other place, to become moderately heated. Cold earth would be apt to chill the roots, and so check the growth for a considerable period. As soon as the compost is properly warmed, bring the plant to the potting bench, prepare a pot to receive it two sizes larger than the one it is in. Drain it well by first laying a large piece of broken potsherd over the hole, propping it up on one side with a small thin piece of slate or potsherd; then place upon it about half an inch of smaller pieces, and upon them an inch of still smaller pieces, and cover them either with a thin layer of moss, or some of the very fibrous parts of the loam and peat. Upon these place such a layer of soil as will allow the ball of earth attached to the plant to stand just level with the rim of the new pot, then with the hand work in the soil all round the ball till the pot is quite full, but do not press it hard; then level the soil and the operation is finished. Place the plants in a warm stove, temperature, 70° by day and 60° by night. This is quite heat enough for this tribe of plants. Let them stand within eighteen inches of the glass; give a good watering at the first to settle the earth close to the roots; keep the air of the house moderately moist during the early part of the year, but when the sun causes the heat to rise high, have the floors, walls, and pipes, frequently flooded to keep up a regular atmospheric moisture. When the plants are growing rapidly give plenty of water at the root also, as the demand for nourishment is then great. Air must also be given freely during this hot season by day, and even a little in the night will be advantageous, the grand aim being to keep down the heat, both day and night, to the right degree. Syringe the plants freely morning and evening to encourage growth, and to prevent the attacks of insects. As soon as the plants have filled the pots with roots they ought to be re-potted, and then is a good time to stop the young shoots; tie them out and so form handsome shapely bushes. The shift this time should be pretty liberal, as if all has gone on right the plants will be strong and healthy; return them into the stove and continue the same liberal treatment. About the middle of July the plants would be greatly benefited by a two months sojourn in a cold frame or pit; set them upon a bed of coal ashes, shade from very hot sun, syringe them every afternoon, and shut them up close immediately. The benefit they will receive by this treatment is twofold—a more free, solid, stout growth, and complete freedom from insects. We have practised this method for several years, and can confidently recommend it for young woody stove-plants of nearly every kind, the only exceptions being *Ixoras* and *Aphelandra aurantiaca*.

Winter Culture.—When the nights begin to be longer than the days, remove the *Franciscæas* into an intermediate house, heat 55° by day and 50° by night, and keep them there through the winter. This will give them a rest, and will, perhaps, cause them to lose part of their leaves. During this time give them but little water, and keep the air of the house quite dry. This rest and drought will cause them to grow and flower much more satisfactorily than if they were kept continually excited.

Propagation. By Cuttings.—These plants should be propagated by the young shoots they make in the spring, after they are brought into the warm stove from the cooler house they have been kept in through the winter. Take the cuttings off just at the point they start from, as soon as they are three or four inches long; plant them in five-inch pots in the usual compost, with a layer of pure silver sand at the top, give a gentle watering, and place them under hand-glasses upon a heated surface of either tanner's spent bark, sand, or coal ashes, shading from bright sunshine. Be very careful in watering, for being so young they are liable to damp off. They will soon strike root, and should then have air given to them by propping up the hand-glasses for a week or two. After that pot them off into three-inch pots, replace them under the hand-glass for a week or two, and then gradually accustom them to bear the full light and air, and as soon as that is the case treat them in the same manner as the older plants.

Salpixantha coccinea (Scarlet S.); Jamaica. 3s. 6d. —A very pretty winter flowering plant with tubular scarlet blooms, white inside. They are produced on short racemes from the axils of the upper leaves. The foliage is handsome, of a dark glossy green. It is a rather new plant, of considerable beauty at a season of the year when flowers are scarce, and belongs to the large Natural Order *Acanthads*. The flowers very much resemble those of an *Epacris*.

Soil.—Like most of its congeners this plant loves a light moderately rich soil. Turfy loam, peat soil, and vegetable mould, in equal parts, with about one-eighth of river sand, will grow it satisfactorily.

Propagation. By Cuttings.—The young shoots form the best cuttings. Take them off about three inches long, put them singly into thumb-pots filled with the compost, excepting a thin layer of sand on the surface, first trimming off the lower leaves and leaving the two uppermost on. By placing them in these pots at first there is no trouble or check in re-potting. Place them under a hand-glass on a heated surface of sand, giving a gentle watering at first, and repeating it when necessary, shading from bright sun. They strike so easily and certainly, that there is no necessity for putting them into a cutting pot and using bell-glasses. As soon as they emit roots, give some air and less shade for a fortnight, and then re-pot them into pots two sizes larger, about three inches in diameter. They are then ready for

Summer Culture.—As soon as they have filled their pots with roots, re-pot them a second time into six-inch pots. If they have grown four inches high, nip off the top buds to make them throw out side shoots, and form compact bushes. Keep them in the stove, giving them plenty of water, frequently syringing them over head, and keeping up the usual moisture in the air of the house. In July, if there is that convenience, place these plants in the cold frame, treating them the same in respect to air and water as is described for the *Francisceas*. Towards the end of September bring the *Salpixantha* out of the frame, wash the pots, top dress the soil, and tie the plants up neatly into a handsome form; but do not stop them any more, as it is from the young shoots the flowers will be produced. Place them in the stove at not more than two feet from the glass; continue watering moderately at the roots, but do not syringe so freely, the object being now to induce, by a drier atmosphere, short growths to produce a dense mass of bloom. The temperature, also, for the same purpose should be reduced, and this happily suits the rest of the stove-plants. The flowers will begin to appear in December, and will be produced in succession through January and February. After the flowering season is over the plants should be cut down; and as most stove plants are benefited by that operation, we shall finish our remarks this week with a few practical observations on that point of culture.

Cutting down shrubby Stove-Plants. — If stove-shrubs are allowed to continue growing on without pruning they will soon become unwieldy, long-legged, straggling, and unsightly. To bring them into form, and cause them to be shapely handsome bushes, it will be necessary to give them annually a severe pruning; in some instances even to cut them down to within six inches or a foot of the pot, according to the strength and size of the plants. This applies more particularly to the plants belonging to the Natural Order Acanthads; such, for instance, as *Justicias*, *Eranthemums*, *Barterias*, *Aphelandras*, *Clerodendrums*, and several other of similar habits belonging to various orders. The right time for this operation is almost immediately after the flowering season, which will happen, of course, at various seasons of the year. Whenever that takes places, cut them down to such heights as the judgment of the cultivator may see fit. Now it is a well-known principle that the fewer the leaves the less supply of nutriment is required for the support of the plant; therefore, when a plant is suddenly deprived of all, or the greater part, of its foliage it should, in a great measure, be deprived of moisture, both at the root and in the air. Give no water, then, to newly cut down plants for at least a fortnight after the operation, and then no more than is absolutely necessary to prevent the roots perishing, or the soil from shrinking from the sides of the pots. Follow this apparently starving system till the plants begin to push out new leaves. As soon as these have attained some size, take the plants into the potting shed, turn them out of the pots, reduce the ball of earth considerably, but carefully, so as not to injure the main roots, repot them in fresh compost, give them a very gentle watering, and replace them in the stove. If a bark-bed is in the stove the plants will be all the better for the stimulus they would have by being plunged in it. After they have made considerable growth, and have become clothed with shoots and foliage, they may be treated in the same way as the young plants that have not been cut down. T. Appleby.

FLORISTS' FLOWERS.

Cinerarias.—Continue to protect them from frost, and as they begin to come into bloom remove them out of the pit into the greenhouse. They will then require a constant and plentiful supply of water, because the air of the greenhouse is much drier than that of the frame or pit. Those intended to grow into large plants either for mere ornament, or for exhibition, should have timely fresh potting; for if the roots become too closely matted in small pots, the plants will be stunted and the heads of bloom small and badly coloured. See back numbers for instructions about other florists' flowers. *Shelter* attend to particularly, as the plants are very tender with the mild weather of this season, and will be more liable to suffer from the frost in consequence. T. Appleby.

THE KITCHEN-GARDEN.

Routine Work.—*Basil, sweet marjoram, beans* and *peas* of late varieties, *borage* and *borecole*, early Cape *brocolis, burnet, coleworts, cauliflowers, capsicums, lettuce, onions, parsnips, parsley*, &c., should now all be sown in full crop; and as soon as plants of any kind of crop make their appearance, the surface of the soil should be lightly harrowed, or one-way raked. Shallow surface hoeing between the drills of small plants will also be beneficial; but a good deep scarifying will be more serviceable about the established crops.

Framing.—Maintain a uniform kindly growing heat. If the frames or pits are heated by fermenting materials, they should, previously to applying them, be well wrought by frequently turning, parting, and intermixing, so as to sweeten and prevent their burning, cakeing, or binding together. The heat should be applied to the top, by frequently adding to that part of the linings, and protecting it with dry mulch. The sides should be protected with thatched hurdles, or some kind of refuse, as previously directed, for maintaining a kindly heat, and keeping the plants and interior dry, which is a most essential point for the prevention of canker, mildew, or vermin. The *forcing asparagus* should be supplied with tepid liquid manure water, as well as *French beans* in pots. Sow and transplant in succession. Let the soil now be, for their growth, a little more loamy, as the lighter soils will be likely to get dry very often; and if the application of water be at all neglected, they are very liable to be infested with the thrip or red spider.

Frames, pits, or other forcing structures, should occasionally be white-washed over with hot lime. Take two

or three stones of hot fresh burned lime, and place it in a pail or other utensil. Pour on to this some boiling water; stir, and add to it as much water as will make it the proper consistency; then add a few ounces of sulphur vivum, keep it well stirred with a stick, and make use of it immediately, brushing it well into all cracks, crevices, and holes.

CHARRING TAN, either old or new. This operation may be performed in the same way as recommended for saw or wood-dust. Old tan may be trodden together while moist, and moulded into bricks or cakes, or made use of as an outside casing for charring other materials. All are most valuable for drilling in with seeds, or for making use of about cattle-sheds, pig-styes, cesspools, or other unpleasant smelling localities, for absorbing all noxious, fetid vapours; after which, if made use of in the cultivation of the soil, the valuable and beneficial influence of the materials are greatly enhanced.

Peat.—That of late brought into note, and said to be secured by a patent, cannot or ought not to prevent any one charring peat to any extent they may please, upon the principle pointed out by myself many years ago, accounts of which have been published in various periodicals and journals for years past. The extent of peat in the United Kingdom, and within a short distance of almost every locality, can, as I at that time pointed out, be turned into a national wealth if charred for manure; and it could be disposed of so reasonably, that it would cause a vast deal of that money to be expended at home in labour, which for some years past has been paid for foreign, and other less valuable artificial manures; and, as we have previously stated, one of its most beneficial effects being its power of absorption of all fetid and offensive smells, whether from the atmosphere, stagnated water, cesspools, night soil, &c., &c., its influence may be made so beneficial and purifying to some localities, as to render them more wholesome to reside in. We have had many years experience in charring, and in the use of charred materials, to a considerable extent, for all kinds of exotic plants, hard-wooded New Holland plants, heaths, soft free-growing floricultural plants, pine apples, cucumbers and melons, and, indeed, every kind of plant, both in-doors and out, as well as every kind of kitchen-garden crop, dredging the young plants with its dust to prevent the ravages of the fly. And we have also used these materials to some extent with field crops, &c., upon all of which it has a most beneficial effect, more particularly where the soil is kept well surface-stirred. Peat may readily be charred in the same way we have recommended for clay and sod charring, either in conical-shaped kilns or mounds, or in continuous ridges, with chimneys left at corresponding distances to the height which it is packed. Peat may be cut, dried, stacked and thatched, to any extent desired, in the summer months, and conveyed to any locality to be charred when convenient, if not desirable to char in the locality where it is cut. After this, it may be sorted and packed away, the dust by itself. All should be kept dry, by being packed or stored in dry situations. It being of such an absorbing quality, it will soon increase in weight, where it has the opportunity of absorbing moisture from the atmosphere.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

CONCRETE WALKS—TREATMENT OF BURNS, &c.

I HAVE read, with a good deal of care, our worthy friend D. Beaton's" rather intricate, but interesting lucubrations n Concrete Walks and Roads. So far, I think, I could make a ead on his principle, provided I had the same materials or milar; but he uses the phrase "chalk lime." Now it may be y ignorance, but I do not think we have such a material ith us; all our lime is burned, and the stone previous to urning is of a hard, unbinding character. Now if Mr. eaton can give me some idea how to proceed with our cotch lime, I should take it as a favour, as I have some alks to form this spring and should like to try it. My otion was to take our "lime shells," as the burned lime is alled here, and break it up on the top of rough stones or ottom, so to speak, before the concrete comes to be laid. erhaps after all it is the difference of terms that confuses ie. I purpose using engine ashes screened, and the slag om the iron furnaces broken small. Such materials will, I ppose, be suitable?

[Chalk lime and shell lime are both alike in property. o as you propose.—ED. C. G.]

Sometime ago you gave a recipe for making *potato soup*. ow as this happens to be an especial favourite dish of ine, and also, I think, essentially a Scotch dish, it will not e out of the way, if I correct your recipe in one important oint, viz., that the potatoes ought to be boiled by themelves before making the soup, and the water so used in oiling thrown away, as it is not only useless, but injurious. ou can scarcely believe the difference this makes in the up.

In No. 123 in "Various Receipts for Various People," I nd the old fashioned, but very cruel method of treating *rns and scalds*, by the application of cotton, is recommended. ow when it is considered that in many parts of the coun- y cotton is a commodity not easily got, would it not be tter to turn to something to be found in everybody's house, at is much more efficacious and speedy in its effects than tton? I mean "cold water." I know this is quite heterodox the generally received opinion as regards burns and scalds; but any one who can bring to their mind's eye any party whom they have seen burned or scalded, and treated with cotton, and can recollect the painful state of the wounds from the cotton sticking in, also the long period that elapses ere such wounds healed, and then contrast it with the following cases under cold water treatment, will at once see the superiority.

A friend of my wife's, who has a farina gum manufactory, during some operation with one of his workmen, got himself and also the man severely burned, so much so that they were carried to their homes in a very critical state; he being a great hydropathist, at once applied cold water, and in three weeks he was at work again nearly quite restored; but the workman was treated in the old fashioned way, and after six or seven weeks came to pay a visit to his employer at the works in a miserable plight still, although it so happened that the employer was the most severely burned of the two.

The next case was in my own house. One evening my servant was ironing a few small clothes, and had laid to the fire, amongst the larger smoothing irons, a small one, which she had neglected until nearly red hot, and on taking it from the fire laid it on the fender to cool; my little boy, a child of three years old, got sight of it, rushed at it and grasped the handle; the consequence was, the pain was so great that he either could not open his hand, or did not know what to do—and the girl shook the iron out of his hand You may conceive the state his tender skinned hand was in, being a mass of blisters; he was at once stripped and put to bed; a basin of cold water and some rags got, which were dipped, applied, and changed just as they got warm, every five minutes at first, during the great heat of the burn; this was continued for an hour, when the child fell into a sound sleep;—his hand was then tied up in a wet cloth, and several folds of dry cloth above it; he slept well all night, and the first shout I heard in the morning was, "Papa, hand quite well!" *and so it was*; only that the child, not feeling any pain, could not be got to take care, and so broke some of the skin of the burned parts,

which made it a week or so ere his hand was quite restored. The method of this application is simple; it is always at hand—it is speedy—it is a rapid relief to the patient, and no one who trys it will ever regret it. As follows—Get a basin and cold water, and rags, linen or cotton; apply these wet, almost dripping, all over the burned part, and so soon as the patient says they are hot, apply another rag and so on until you can see the inflammation is quite removed; no covering is to be used until tying it up, when you can then cover the wounded part with a wet rag, and a good many folds of dry ones, taking care that on opening it again, if the inside rag is sticking to the wound, that water is freely used ere the removal of the rag is attempted.—WM. R. W. SMITH, *Glasgow*.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

CHINESE PRIMULA CULTURE (*A Lady*).—Seeds sown in April in a little heat, and the seedlings potted off successively, will give fine flowering plants early in autumn and winter; those from seeds sown after June will come in after Christmas and in the spring. Light sandy loam and leaf mould suits them well. If sown soon, the seedlings must be kept either in a window, or, better still, in a pit or frame, until they are well established.

FRINGED PRIMULA (*Ibid*).—These are often advertised, and most seedsmen will supply it. You may get them nearly all fringed, and sometimes scarcely any. We have saved from fringed sorts, kept by themselves, and at times we have not had one fringed one from the seed.

TRUMPET HONEYSUCKLE (*Ibid*).—The transplanting was probably the cause of its flowering in 1849; improper soil, and smotherings with insects, was probably the reason of its not flowering in 1850. These are a poor preparation for blooming in 1851. If still alive, proceed as follows:—See that the soil is sandy and dry, and add a little peat. Prune any small young shoots to the last bud, wash the plant all over with a mixture of clay, soot, and tobacco water, when growth commences; dislodge every insect by the syringe and a little tobacco water; give waterings in dry weather, to perfect growth; and, if you do not succeed very well this season, you are adopting the means of having plenty of bloom in 1852.

THE CLOTH-OF-GOLD ROSE (*Ibid*).—This is propagated both by cuttings and budding; and almost any growing stock will do.

WINDOW PLANTS (*H. H.*).—You will find much on this subject lately by Mr. Fish and others. As you are fond of small plants, you will find notice of some things to day that would suit you—as the annual *Mesembryanthemum, Lobelia, Portulacca*, &c.; but if you have no hotbed it would be of no use sowing them in the window until May, and then you would require a square of glass over every seed-pot. Of course these would only last you during the summer. As you have no fire, and wish things green in winter, a collection of hardy *Sempervivums* and *Sedums* would suit you. If you could merely keep the frost out, another succulent group might be added in the shape of the *Cacti*; and if the large flowering varieties would be too large, you could adopt as your protegés those strange-looking, but interesting, sections of the group—the *Echino cacti*, the *Melo cacti*, and the *Mammellaria*. As you want something out of the common way, we think this last, along with a few dwarf *Aloes* and *Haworthias*, would just suit you. They would require all the heat and light you could give them in summer, and a fair supply of water; and in winter as much light as possible, but scarcely a drop of water. They would also stand a Sunday's darkness—synonymous to *starvation*—better than the generality of plants. Whatever other plants you grow, if you must have them dark on Sundays, try and leave them in a *dryish* state on Saturday night, and give water if wanted as soon as you admit light on Monday morning. If you think of the processes performed by the leaves in sunshine and light, you will see the necessity of this.

TRANSFERRING BEES (*J. Hudson*).—Let your bees remain in their present hive; put their first swarm into Taylor's hive, with empty combs; hive the second swarm into any kind of hive you please; and in the autumn turn the bees in the old hive to the second swarm, either by driving or fumigating. Look well to your second swarm, which weighed only 3 lbs. in September, and which you have not fed, but which is collecting pollen vigorously at the present time. Begin to feed them immediately, and continue doing it so long as they will take it.

CLIMBERS FOR A TRELLIS (*J. M.*).—To cover your trellis so as to hide an unsightly corner of the garden, make a rich border on the *south* side, and for this season plant twenty plants of the Canary plant (*Tropæolum canariense*), and one or two of the different varieties of *Convolvulus major* between every two of the Canary; sow the seeds now, and plant out in May. On the *north* or garden side of the trellis, and two feet from it, sow now a row of mixed *sweet peas*. All this is to screen for one season; for a more permanent covering put in this spring *Evergreen Roses, Honeysuckles*, and *Clematis*, and you will soon have an impenetrable thicket and plenty of flowers. As your *seedlings of hardy biennials and perennials* were kept in the seed-pots through the winter, be in no hurry to plant them out yet—the last week in April will be time enough, and if they are very good sorts we would give them a little pot each now; when slugs and other creatures come out in the spring little seedlings are very apt to be eaten by them.

YELLOW-BERRIED HOLLY (*G. A.*).—You can only increase the yellow-berried holly by grafting, inarching, or budding on the common holly; you cannot increase it by cuttings, and it will not come true from seed. If some of the branches are near the ground you can lay them, and in two years they will be rooted sufficiently for removal. The best way of all to use this variety is to bud it in June on the tops of the *side branches* of the best white variegated hollies you can find; they will then grow less luxuriant, produce twice as many berries as by any other way, and the yellow, and white, and green, well mixed, will have a fine and novel effect.

GRAVEL SPLASHING AGAINST A HOUSE (*Devoniensis*).—"As Mr. Beaton has been writing lately on the construction of walks, &c., perhaps he would kindly suggest some method of preventing the splashing of red gravel against a white house. At present the building is discolored to the height of two feet or more from the ground. A row of flagstones, eighteen inches in width, next the house has been proposed, but this it is feared would have an ugly effect. White gravel can be procured; but is this in good taste for a broad terrace round three sides of a white house?" We have lately heard one of the first architects of the day, Mr. Barry, had recommended a stone plinth, eighteen inches wide, to be set against the wall of a house that was discoloured by the splashing or drips like yours, and a border of stone, of the same width, to be set in between the gravel and this plinth. We conclude, therefore, there is no architectural law violated by such process. The plinth was fixed, but the proprietor objected to the stone border, because, like you, he thought it would look "ugly." White gravel is very objectionable in front or round a white wall. We would not hesitate one moment to put a stone border round the house, concrete gravel would soon show a white line under the drip, worse than all.

FUCHSIA-BED (*Ibid*).—The foliage of *Fuchsia Coralina* is so rich that it hides the flowers too much in a bed for the first two seasons after planting; the best remedy is to cut out some of the *side branches*, say one-third of the number, three or four times in the season.

GRAFTING CAMELLIAS (*G. A.*).—This is a good time to graft the blush Camellia. Stocks of all sorts are best if in advance of the grafts; all grafts should be dormant at the grafting time.

PROPAGATING GLOXINIAS (*Cottage Gardener*).—They must not be divided at the roots like Dahlias; never cut the tubers of one of them, and there is no occasion for it, as every leaf will grow as a cutting, and we have seen twenty plants made out of one leaf by scoring the ribs at the back and laying the leaf flat on damp sand; after rooting, the leaf was divided into little pieces, and every one of them made a little tuber or bulb.

LONGEST CUCUMBERS (*Ibid*).—Having once heard that Suffolk was the "cradle" of cucumber growing, we sent your query to Shrubland Park, and Mr. Beaton says that the Browston Hybrid variety is the longest they know in that part of the country; one which was sent to a nobleman at Bath last spring was thirty-three inches long, but the Bath reporters made it somewhat longer. It is not a profitable one, however, to grow for general use, and should not have more than two fruit at a time, if grown for length.

CHINESE AZALEAS (*Ibid*).—If "the flowers are not an object," the beginning of April, or just before they begin to grow, is the best time to prune them, otherwise when the flowers begin to fade; by the former plan the plants are easier brought to good shapes and vigour.

ROSE-BEDS (*X. Y. Z.*).—See what Mr. Beaton says to-day.

TROPŒOLUM SPECIOSUM (*Reader*).—After resting all the winter this climber is now making its way up out of a five-inch pot; water it and keep it as cool as you can till the May frosts are over; then plant it out on a north-west or east aspect; the south is too hot and dry; but it will flower on a trellis away from any wall, if the roots are strong enough.

TOKAY VINE (*A Young Gardener*).—These are great lovers of a high temperature, and yours, at night especially (70°—75°), is indeed high. It is pretty evident that the heat suits them, as evidenced by the extreme point of the shoot from the cool end. Remember, however, that the Tokay is easily overcropped; a healthy young Tokay Vine will sometimes show ten times the amount of fruit it should be permitted to retain. If such be retained the consequence would be that a few bunches only would succeed, and those at the terminal point. You use steam two or three times in the daytime. We cannot approve of this practice.

WHITE CAMPANULA CARPATICA (*F. H.*).—This does not come into blossom till the beginning of June, and ceases to flower about the middle of September.

LOBELIA RAMOSA CULTURE (*Ibid*).—It must be sown on a slight hot-bed in March, and in the greenhouse, or close cold frame, in April and May. A hand-glass would be a sufficient protection to the seeds in May, and they would even do in the open air were it not that a heavy shower would wash them out of the ground. The seeds of all Lobelias are so very small that the slightest covering of earth is sufficient for them. *L. racemosa* may be transplanted with safety any time till it is in full flower. The plants from the March sowing will be in flower early in June, and will keep in flower till the middle of September, or later in

son; these sown in May will flower from the middle of July till outs them down.

IE DAPHNES (*F. W. T.*).—There are not many Daphnes known owing are the principal:—*D. pontica rubra*, a hybrid; *D. tini*ve, from Jamaica; *D. odora*; *D. odora variegata*; *D. indica* D. *Chinensis*, from China; *D. hybrida*, garden, nearly hardy; *ruces*, Nepaul; and *D. tomentosa*, from Asia. You may cut ss your long-legged specimens, and put in the cuttings; put o heat till they break; use tops only. Put them in sand under a s, they will strike, but with some difficulty; or you may graft on the common Spurge laurel (*D. lauriola*), which is the best ropagate them. The grafted plants should be put under hand- a gentle heat. The flower buds will set without any trouble if w the plants in a heat of 55° to 60° in April and May, just as ld a Camellia; place them out of doors after that till autumn.

EA SALIGNA (*Ibid*).—This is a tender greenhouse plant that bear full exposure in summer. It should be treated with the in April, and afterwards be placed in an airy part of the green- Your present sickly plant will not recover, you had better procure r young one and try again. Cold water, when the plants are in always injurious, as is also the smoke of a large town like that u live.

OW GARDENER should have looked into our number for February ore he wrote his last letter.

LOTUS LEUCANTHA (*R. A.*).—Send a stamped envelope with rection on it to *J. H. Payne, Esq., Bury St. Edmund's,*

I FROM SEED (*M—y H.*).—See what is said at p. 344 of our present For *Bee-hives*, apply to Mr. Payne, as above.

EEPING (*M. L. D.*).—See the statements at pp. 154 and 234 of volume, and at pp. 17 and 90 of the present. The details are : for any cottager. There is *The Modern Dairy and Cow-keeper, bert W. Johnson*, price 2s. 6d.

CCO SMOKING (*A Constant Reader*).—Thanks for your very good You say, and probably truly, that 365 pipes full of tobacco cost 2½d. But one pipe is the gentleman-usher to a second, and a something!

—In answer to several inquiries, *Cochin China Fowls'* eggs may ned from Mrs. E. Watts, Monk Barnes, Haverstock Hill, Hamp- dozen for a guinea. *Spanish fowls'* eggs may be had for four- ch, and *Cochin China fowls'* eggs for sixpence each, of Mr. W. Bank-street, Bishop's Waltham, Hants. See also an advertise- to-day's paper. *W. J. M.*, 37, Bridport-place, New North Road, eightpence each for Spanish fowls' eggs.

UICED ORANGE (*M. H.*).—Our correspondent wishes to know e could obtain some grafts of this. Your *Bees* will do with a ect, but it is very far from a good one.

N-RUBBER RINGS (*W. J. M.*).—These have been successfully prevent the splitting of the calyx of the Carnation. We do not y particular *Rabbit* fancier; if we did we would endeavour to om him a series of papers on the management of rabbits.

EDRUS CHILENSE (*F.*).—Mr. Beaton says you are quite right; it Low, of Clapton, that introduced this tree. Mr. Veitch was not to the introduction.

NCULUS-BED (*Samohet*).—We cannot advise you to pour whale this to keep in the moisture. It would not answer the purpose, ld probably injure the flowers.

NT TO UNITE ZINC AND GLASS.—*Incubator* writes to us thus: wer to the inquiry of '*W. M. J.*,' for a 'cement or glue suitable ing lapped joints of zinc and glass, so as to resist the constant f hot water,' I beg to say that a cement suitable for his purpose made by thoroughly mixing white and red lead together till they of the consistence of *fresh* putty. It is better (as in the case of o work it in the hands before using. Some correspondent will, inform me where I can obtain some thorough-bred *Poland fowls*, Silver' Spangled and 'Gold' Spangled varieties."

INTHS IN GLASSES (*An Inexperienced Admirer*).—The flower- these being too tall intimates that you grew them in too much and too little light. Why do you not use for them *Hamilton's A supporters?* Those bulbs forced this year will not bloom next They are scarcely worth taking any trouble about.

COT BEAN (*J. D. B.*).—The best mode of raising this is by sow- boxes or pots early in April in a greenhouse, and transplanting ts into the open border when frosts are no longer to be dreaded

CCO GROWING (*W. J. M.*)—You may do this for fumigating your use. All that we know about its culture is given at p. 316 of our volume, and all that we know of drying it, at p. 374 of our third. her questions next week.

ID-MANURE (*R. P.*).—Apply this very sparingly to your peas and 'growing in ground unmanured for a long time," until the -buds appear, then you may give it more frequently. *Cauli*sown at the end of April, will be ready for planting out in June. *life* is often saved by some one being with her when calving. her questions next week. Thanks for the seed.

O FOR POTATOES (*C. Stevens*).—Never apply this. It is the all applications. If your soil is so poor that it must have a fer- ive it a dressing of peat charcoal and Epsom salt just before the ground for planting.

VINEGAR PLANT (*J. Currie*).—If you remit six postage stamps, and order No. 35 of THE COTTAGE GARDENER, you will have it sent post- free. It is a double number, and contains a drawing of the plant.

NAMES OF PLANTS (*W. R. F.*).—It is impossible from such fragments of *Cacti*, to tell their names with certainty. No. 1 seems to be *Cereus grandiflorus*, and 2, *Cactus speciosissimus*.

A COTTAGE BUILT FOR £10 (*E. Hannam*).—The following facts will be the best answer to your inquiry about a cheap cottage. They are from a correspondent (*W. H. W.*). The cottage he describes is at Enville, near Ongar, in Essex, and was built by its proprietor, Mr. Clay, assisted by a skilful farm labourer. "It is a building, three rooms in length, erected at the corner of a meadow, on a spare nook which could not well be turned to any other profitable purpose; and it is a leading feature in it, that, with the exception of the deal boards for the doors and the glass for the windows, the whole of the materials have been produced on the farm. The walls are built of "clay lumps"—that is, clay worked in the same manner as for bricks, moulded into lumps twenty inches long, seven deep, and ten wide, and well dried in the sun in the heat of summer; these are laid with the same material, just as if building with bricks and mortar, and when plastered over on both sides, and thoroughly dried, form a wall exceedingly hard and firm, which no cold or damp can penetrate. The roof is shaped with poles cut from a wood on the farm, the place of thatch laths being supplied with straight sticks; over this an excellent coating of thatch is neatly laid, and the inside is plastered and whitewashed. The windows, which are of ample size for a cottage, are formed of large panes, a bar passing down the centre; and the transverse supports of the glass are of lead, so that the expense of a regular window-frame is saved; and, as a further proof of the extent to which economy is carried, the door is made folding, and the half being thus light swings on gudgeons, by which the outlay for hinges is spared. The floor is composed of a sort of concrete, made of the brick earth and fine sand; and the chimney, which contains a cosy enclosed corner for the labourer at night, is built of clay lumps. An extra window in the shape of a cross, studded with fragments of coloured glass, has been introduced by the taste of the architect into the end of the bedroom, and answers the double purpose of furnishing light and ornament. The whole length of the building is 32 ft.; width, 12 ft.; height of walls inside, about 8 ft.; and to the canopy of the roof, 11 ft. The size of the *keeping-room* is 10 ft. by 12 ft.; *bed-room*, 11 ft. by 10 ft.; *kitchen*, 9 ft. by 10 ft. We come now to the actual cost. The following were the figures furnished to us, and which we tested by the statements of the man by whom the work was done. Making 300 clay lumps, at 3s. 6d. per 100, £1 8s. 0d.; laying do., at 2s. 6d. per 100, £1; thatching £1 16s.; glass for windows 6s. 6d.; glazing and putty 5s.; wood for doors, and making doors and window frames £1 1s.; rough wood for rafters and thatching laths 10s.; nails and forming roof 12s.; claying inside and whitewashing £1; chimney pots, &c., 12s.; making a total of £8 10s. 6d. Thus it will be seen that Mr. Clay, unlike most architects, has completed his building for less than the estimate; and we think if the £1 9s. 6d. were laid out in providing some other material for the floor—for the idea of a clay bottom does not strike us very pleasantly—it would remedy the only thing about the cottage we were disposed to find fault with. The house was furnished and occupied when we visited it, being let, we believe, to a person on the farm, at fourpence a week, which yields good interest for the outlay; and Mr. Clay assured us he could readily let it, if disposed, at 45s. per annum. Of course the idea may be amplified, and a cottage with the same materials built for a labourer having a family at a proportionate increase of cost."

PROFIT OF POULTRY (*A Widow*).—We forwarded your letter to a good authority, and this is her reply:—"I am rather at a loss in giving an opinion from not knowing what facilities the widow may possess in the disposal of her produce. If she knows a number of families who would deal with her, it would most likely prove a mutual advantage, and render her task much easier; for I believe the intervention of the retail dealer wipes off the profit of the producer to a very great extent. I think fowls kept by a person who could give them much attention might be made very profitable; but whether they would positively keep a person or a family I cannot say. The produce of a garden, and the trouble of cooking the vegetables for the fowls, would reduce the expense to one feed of corn a day, and some meal for the young ones; I do not think this would come to more than one halfpenny a week for each fowl; and I believe fine fresh eggs in London would be purchased readily (by families who might hear of them) eight or ten for a shilling. A good hen will lay nine eggs in a fortnight. With regard to fowls for the table, they may be put up to fat at from three to five months old; penned rather than cooped, as there is sufficient space; and the cheapest feeding is a kind of meal called middlings, with potatoes and other vegetables cut small. A little cheap boiled rice is very good. Some corn, of course. Ducks are such ravenous feeders that I consider them less profitable than fowls. The widow's premises must be admirably adapted for keeping poultry, and the cross breed she mentions would be excellent fowls; and, for the table, would, no doubt, bring a good price in London."

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Valuable Vegetables.

CAULIFLOWERS. — Myatt's Improved Early. Much earlier than the old varieties, more compact, and heavier; considered by the raiser as most desirable; quantity very limited. 1s per packet.

BRUSSELS SPROUTS. — Improved variety, direct from Brussels. 1s per oz., 6d per packet.

CABBAGE. — Mitchell's Enfield. This has been tried at the Horticultural Society's Gardens, and pronounced one of the best. 1s per oz., 6d per packet.

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LETTUCE. — Victoria Cabbage. But little known, but one of the handsomest grown, and which no gentleman's garden should be without. 1s per oz., 6d. per packet.

PARSLEY.—French fringed. Very handsome, much finer in appearance than the curled. 6d per packet.

DUNCAN HAIRS, in offering the above selection from his general list, begs to inform his friends that he warrants them to be as described.

109, *St. Martin's Lane, Charing Cross, London.*

Hardy Showy Annuals for present

sowing, suitable for growing in masses. The following are recommended as being similar kinds grown by Mr. BEATON, Shrubland Park.

Ageratum Mexicanum.	Gilia rosea odorata.
Agrostemna cœli rosa.	Godetia rubicunda.
Allysum odoratum.	Iberis umbellata.
Bartonea aurea.	Kaulfussia amelloides.
Calendula pluvialis.	Larkspur crown, dble.
Clarkia fimbriata.	Leptociphon densiflora.
Colinsea rubra.	Lupinus nanus.
Convolvulus minor purpurea.	Malope grandiflora.
	Nemophila maculata.
Coreopsis nigra speciosa.	Oxyria chrysanthemoides.
Erysimum Perofskianum.	Saponaria Calabrica.
	Silene compactum.
Eschscholzia compacta.	Viscaria oculata.
Eucharidium grandiflorum.	

ASTERS, four splendid varieties, will produce all double show flowers, 2s.

STOCKS, German, six brightest colours, very double, 2s.

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W. D. can supply seeds of the following for Bees—MELILOTUS LEUCANTHA, 6d per paper. BORAGE, 6d per paper.

Twelve extra fine Double BALSAMS,

Striped, Spotted, and Selfs, in sorts, 2s 6d; mixed packet, 1s 6d; or 5s per oz.

12 superb Double HOLLYHOCKS, in sorts, 2s; mixed, 1s.

12 good useful sorts of MELONS, 5s.

Ultra crimson Phlox Drummondii, and new Carmine 10-week Stock, 6d per packet. All the most popular and approved border Annuals, including Asters, Stocks, Lupins, Larkspurs, &c., &c., 30 packets for 2s 6d; 60 ditto for 5s. All POST FREE. Enclose Stamps or Money Order to *WILLIAM JONES, Florist and Seedsman, Stoke Newington-road, London.*

Genuine Horticultural and Agri-

cultural Seeds. JAMES CHARTRES, Seedsman, &c., King William-street, City, London, begs most respectfully to call the attention of purchasers to his establishment, where will be found an extensive stock of Kitchen Garden, Agricultural, and Flower Seeds, selected with the greatest care, and grown chiefly under his own inspection.

J. C. takes this opportunity to return his best thanks to all who have favoured him with their commands during the past season; and it is with much pleasure he can state that numerous ladies and gentlemen who have visited his establishment, as a proof of their satisfaction, have recommended their friends.

A Descriptive Catalogue can be had on application. Jan. 2, 1851.

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We have selected, out of a large collection of Flower Seeds, twenty of the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with its Botanical and English name—height—time of flowering—colour of the flower—manner of growing—whether erect or trailing, &c., &c.—the time it should be sown, and other valuable hints as to its cultivation. In selecting these twenty varieties we have been careful to exclude all which are shy-bloomers, or have an insignificant appearance; so that the collection will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters, especially, are most superb.

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12 of the following new GERANIUMS, in strong healthy plants, Purchasers Selection, 12s, or H. W.'s, 7s 6d.—Sparkler, Crusader, Terpischore, Plutarch, Jenny Lind, Foster's, Abd-El-Kader, Belle of the Village, Alonzo, Virgin Queen, Gulielma, Aurantia, Orion, Ariel, Black Prince, Scarlet Defiance, Junius, King of Saxony, Rosa Bud, Flora, Flag, Champion, Mustee, Sir R. Sale, Peri, Standard of Perfection, Garland, Distinctus, Magog, Negress, Avenger, Merry Monarch, Gigantia, Queen Phillipii, Rosmanda, Mercury, Picta, Zenobia, Cassandra, Beauty Surpass, Forget-me-not, Francis Bullen, Valgus, Purpurea, Multiflora, Favourite, Raphael, Isabella.

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21	,, 3½d		5d	,,
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In boxes of 100 feet.	£	s.	d.
Under 6 by 4	0	12	6
6 by 4 and 6½ by 4½	0	13	6
7 5 7½ 5½	0	15	0
8 6 8½ 6½	0	17	6
9 7 10 8	1	0	0

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Hartley's PATENT ROUGH PLATE GLASS, Packed in Boxes of 50 feet each.

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7 by 5 and 7½ by 5½	13 6	9 by 7 and 10 by 8	16 6

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WEEKLY CALENDAR.

M W D D	MARCH 20—26, 1851.	WEATHER NEAR LONDON IN 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
20 Th	Sun's declinat., 0° 11′ s.	30.242—30.108	46—27	E.	—	6 a. 6	10 a. 6	10 12	17	7 45	79
21 F	Bank Swallow seen.	30.300—30.231	53—29	S.W.	—	4	12	11 26	18	7 27	80
22 S	Horse Ant seen.	30.197—30.086	42—36	E.	—	1	13	morn.	19	7 8	81
23 Sun	3 SUNDAY IN LENT.	30.037—29.979	44—30	N.E.	—	v	15	0 36	20	6 50	82
24 M	Red Currant leaves.	29.986—29.958	44—27	N.	—	57	17	1 39	☾	6 32	83
25 Tu	LADY DAY. Lesser Periwinkle flowers.	29.914—29.907	40—33	N.E.	0.01	54	18	2 34	22	6 13	84
26 W	Swallow seen.	29.896—29.842	43—32	N.E.	—	52	20	3 21	23	5 55	85

THE first to assume, professionally, the designation of "Landscape Gardener," was a gentleman whom we remember—HUMPHRY REPTON. He was born on the 2nd of May, 1752, and died on the 24th of March, 1818, leaving us an encouraging example, that though all our early efforts may fail, yet hope need not expire, nor even sicken. We may have a long weary struggle up the shadowed side of life's mountain, but if we persevere, we shall, with God's blessing, at last reach the summit, and be in time to have the sun to shine upon us, and gladden us during the time of our descent. This is as we would have it to all who have to achieve their own fortunes; let the struggle be in their youth, and in their prime; let the reward of the struggle be the comfort of their decline and old age. So was it with Mr. Repton. He was born at Bury St. Edmunds, and from his cradle was destined by his father, a collector of excise, to devote himself to mercantile pursuits. His education at Bury and Norwich, and his initiation into the mysteries of the journal and ledger, at Workum, in Holland, and at Norwich, between his twelfth and sixteenth year, were all intended by his thrifty parent as the seed-time of habits which should render him one of those whom Shakespeare characterizes as "traders with fat purses." It is probable that the same desire prompted his parent to promote an early marriage, and we should not be far in error, if we added, that "base respects of thrift, but none of love," suggested the union. Be this as it may, Mr. Repton married at twenty-one, just ten years too soon, and was settled by his father in London, as a general merchant. At first all prospered, and his "argosies with portly sail, rode like signiors and rich burghers on the flood;" but, after a few years, shipwrecks and other failures changed the complexion of affairs, and both his parents being dead, he joyfully fled into the country, to the rural ease and literary quiet in which from boyhood he delighted, and for which he had lingered dutifully for years. He settled at Sustead, near Aylsham, in Norfolk, where his only sister, Mrs. Adey, was resident in a house, devised to them by their father. To Mr. Repton, the change was, indeed, delightful, and the utterance of his feelings remind us of Montesquieu, who, when relating how he was ridiculed for leaving Paris, for the quiet of a country residence, added—"but my great work advances with the stride of a giant." So, too, did Repton's. His "great work" was studying in the book of nature, watching the results of agricultural experiments, gardening, and studying rural scenery, and thus furnishing the ample storehouse of his mind with those materials, which, in after years, were so available, when in practice as a landscape gardener. From 1775, until 1783, he continued to reside at Sustead, and this being near to Felbrig, where Mr. Windham resided, a friendship naturally united them. They were nearly of an age, both were living as country gentlemen, and their equally delighting in literature and philosophical inquiries, attracted them to each other. In the year last named, Mr Windham was appointed Secretary of State for Ireland, and almost anticipated the expression of his friend's wish, by appointing him his private secretary. It now seemed as if a very different path was opened before Mr. Repton, and that abandoning "each rural sight, each rural sound," he must play the courtier, and learn to tread, without hesitation, the more than usually dark and indirect passages of Dublin Castle. But it proved otherwise; the two secretaries soon became disgusted with Irish politics, and retiring together, Mr. Repton, once more pursued the dictates of inclination at Sustead. But the time had now arrived when the expenses of an advancing family required not only retrenchment in the disbursement of his damaged income, but some effort for its increase, and to effect the first purpose, he moved to a small house at Hare-street, near Romford, in Essex, the whitened walls, and tall limes around which still arise vividly to memory as we write, and to which residence he became so attached, that he never changed it for one with greater pretensions. In 1784, he aided Mr. Palmer, by an advance of a considerable portion of the small remnant of his capital, to establish his mail-coach system, which remained one of the celebrities of Great Britain, until superseded by the present railroad mode of conveyance. Yet the prosperity of the system was so far from bringing advantage to Mr. Repton, that he was glad to escape with a small loss, and it is well that it was so, for if he had prospered as a mail-coach contractor, his country would never have benefited by his publications, and the exertions of his judgment on Landscape Gardening. It was to this pursuit that he addressed himself, so soon as his connection with Mr. Palmer terminated. It was a happy resolution; it was an endeavour to turn that in which he delighted, to a profit; and was a labour of love—that labour which when it prospers, can best make light the heart, and glad the countenance. The field was clear for his occupation, for Mr. Brown had been dead some years, and no one had succeeded to him as a director of taste in garden designing. The thought of turning to advantage his genius for improving scenery, came to Mr. Repton in the stillness of his chamber, when anxiety had driven sleep from his pillow, and was one of those "voices of the night," of which we cherish the belief that they come from the guardian angels sent forth to minister to those who love God. The thought of the night became the resolution of the morning, and with renewed energy he devoted the whole day to apprising his many friends, that henceforth he was "a landscape gardener." Success the most gratifying and complete, attended upon his effort, and obedience to the "voice of the night," sanctioned and sustained by his own strong mind, led on not only to a restored, but to a largely increased fortune. One of his earliest patrons, and who so continued until his death, was the Duke of Portland; and Welbeck, perhaps, more than any other of "the stately homes of England," stood prominently as a monument of Repton's abilities in his new profession. It is impossible, within our narrow limits, even to glance over the improvements he effected at some two hundred of the chief residences of England, but we must refer our readers to the epitome of the *red books*, in which by pen and pencil he placed before the owner of each residence his proposed alteration. That epitome is to be found in his published works, *Sketches and Hints on Landscape Gardening*, published in 1795, and in his *Observations on the Theory and Practice of Landscape Gardening*, which first appeared in 1803. But our readers need not go to those expensive editions, for the whole of Mr. Repton's works on the same subject, were collected by Mr. Loudon, and published in one large illustrated volume, entitled *The Landscape Gardening*, and *Landscape Architecture of the late H. Repton, Esq.* We wish we could pause to detail and comment upon the principles he enforced, applicable to the adornment of every country residence, but we can afford room for only one paragraph, in which he speaks thus compendiously:—

"The perfection of *Landscape Gardening* consists in the four following requisites: First, it must display the natural beauties, and hide the natural defects of every situation. Secondly, it should give the appearance of extent and freedom, by carefully disguising or hiding the boundary. Thirdly, it must studiously conceal every interference of art, however expensive, by which the scenery is improved; making the whole appear the production of nature only; and, fourthly, all objects of mere convenience or comfort, if incapable of being made ornamental, or of becoming proper parts of the general scenery, must be removed or concealed. Convenience and comfort, I confess, have occasionally misled modern improvers into the absurdity of not only banishing the appearance, but the reality, of all comfort and convenience to a distance; as I have frequently found in the bad choice of a spot for the kitchen-garden."

To those broad principles, no just objection can be raised, and, perhaps, in their application few men ever made fewer mistakes. Above all, he never tempted on a proprietor to commence alterations without a careful suggestion of the expence, and in this he kept in view the warning of Rapin—

> Weigh well the subject, be with caution bold,
> Profuse of genius—not profuse of gold.

Nothing remains for us but the narrative of the close of Mr. Repton's life; and we would glady dwell over it, and tell the thoughts it suggests whenever we call to mind all that we remember of his worthiness—but one who knew him better, his son, has far exceeded anything we might hope to say, and so his graceful tribute shall close our brief biography.

"It was one of his favourite maxims, that as there are more beautiful flowers and useful herbs in the world, than there are noxious or unsightly weeds, so the proportion of good in every person's life greatly outweighs that of evil, could we but persuade men to measure each with equal justice. Of this maxim his own life certainly affords us an example. Nature had bestowed on him one of her rarest gifts; a heart totally devoid of selfishness. This displayed itself in every trifling circumstance, as well as in the more important concerns of daily life. To give pleasure to another, was but adding to his own share of happiness; and, with an even flow of spirits that shed light and cheerfulness on all around him, he was peculiarly blessed in his own family circle. For more than thirty years of his life, success, beyond his hopes, attended him in the profession he had marked out for himself; and in the exercise of which, he not only felt pleasure himself, but frequently had the power of promoting it in others. And to these blessings was added that of *health*, which had never known a day's interruption, till the unfortunate night of January the 29th, 1811; when, returning with his daughters from a ball given by Sir Thomas Lennard, his carriage was overturned, owing to an accumulation of snow in the road;—he received an injury in the spine, from which he never entirely recovered. For many weeks this accident confined him to his bed, deprived of all power of motion. In a situation so trying to one of his active disposition, his mind still retained its energy; and his patient endurance of suffering, and cheerfulness of spirits, never deserted him for a moment. It was many months ere he was able to resume his usual pursuits; and there is little doubt that the loss of his accustomed exercise laid the foundation of that complaint which, for the remaining years of his life, occasioned him, at times, great agony; and which his physician pronounced to be *Angina Pectoris*. It was well known to himself (and he did not conceal it from those most dear to him), that the termination of this disease would be as sudden as it must be fatal;—but the stroke was so long delayed, that hope had almost raised a doubt in the minds of his friends as to the truth of that awful fate which he himself never forgot was hanging over him. On the morning of the 24th of March, 1818, he came down to breakfast, not more unwell than usual (the act of dressing had, for some time, been attended with a few moments of spasm in the chest), but he no sooner reached the breakfast-room, than he fell into the arms of his servant, and expired without a groan. So instantaneous was his death, that before his son could hasten from the adjoining room, his spirit had fled for ever.

"Perhaps there is no stronger proof of Mr. Repton's love for the beauties of nature, than the wish he had latterly expressed, that his remains might be deposited in a 'garden of roses.' To gratify this innocent fancy, he himself selected the small enclosure on the south side of the picturesque church of Aylsham, in Norfolk: a simple Gothic monument records his name and age, followed by some lines written by himself:—

"'The tomb of Humphry Repton, who died March 24th, 1818.
'Not like the Egyptian tyrant—consecrate,
Unmixt with others shall my dust remain;
But mouldering, blended, melted into earth,
Mine shall give form and colour to the rose;
And while its vivid blossoms cheer mankind,
Its perfum'd odour shall ascend to heaven.'"

METEOROLOGY OF THE WEEK.—From observations during the last twenty-four years, at Chiswick, the average highest and lowest temperatures of these days are there, 51.2°, and 34.6°, respectively. The greatest heat, 69°, occurred on the 20th, in 1836; and the lowest cold, 16°, on the 20th, in 1845. Rain fell on 68 days, and 100 days were fine.

"I CANNOT comprehend the necessity for draining lands when I see the *Calla æthiopica* flourishing in a pot plunged beneath water; nor how roots can be rotted by water when I see those of *Hyacinths* thriving in it in my glasses." Such is a paragraph in a letter now before us, and we will first reply to the objection, and then show more fully why draining is beneficial.

As to the *Calla æthiopica*, we need only reply that it is a water plant, and we can no otherwise account for its roots requiring an overflow of water, whilst those of some other plants decay if water is in the slightest excess, than we can for the Hippopotamus and the Camel being of similarly opposite habits. God made the one to require an abundant supply of water, and he so constructed the other as to enable it long to exist without even a small supply of moisture. Then, as to the *Hyacinth*, we know that in water it exists for one season, but dies if continued there longer. Its leaves and flowers are formed from the elaborated sap stored up in the bulb during the previous year's growth, and so far is it from gaining in weight of *solid* matter during its growth in water, that this is actually diminished. In fact it endures the water for a short season, as many other organised creatures will live in an unnatural state for awhile, but the excess of water speedily brings to it death.

It is only to those who are unacquainted practically with the cultivation of plants, that it is necessary to urge that an excess of water is prejudicial to them, whether under glass or in the open air. It will be sufficient to specify the damping off of cuttings and seedlings under glass; the waxiness of potatoes, the mossiness of apple trees, and the gum and blistered leaves in peaches. These are only a few of the actual diseases occasioned by such excess of moisture in the soil; but the mischief does not stop there.

Wherever there is such an excess the crops are later in coming into production, and are earlier in being cut down by the frosts, and for the evident reason that the more superfluous water is in the soil the greater is the amount of evaporation, and the greater the evaporation the greater the degree of cold. Thus the experiments of M. Schluber and others show, that where a soil in a dry state reached by exposure to the sun the temperature of 113°, the same soil in a wet state only attained to 99°. This accounts for a well-drained soil having the forwardest vegetation, and that an ill-drained soil has its crops soonest cut off by frosts, is because that as it is heated slowly so does it cool rapidly from excessive evaporation. It is over the lowest and wettest portions of a field that the evening fog is first apparent, for as it first becomes colder than any other portion of the field, there first is seen the moisture deposited from the air, for fog is nothing but moisture so deposited. We never saw the consequences of this more markedly demonstrated, than by the dahlias about Winchester during the winter now closed. In the low grounds near the Itchen they were cut down by the first frosts, but in the better drained grounds on the chalk hills around, they were untouched by the frosts for two months later. The subject, however, has not been left to speculation, for Mr. Parkes, Mr. Dickenson, and others, found that the evaporation in inches from the same soil, drained and undrained, was as follows:—

	Jan.	April.	July.	Oct.
Drained Soil	1·28	1·05	3·30	2·09
Undrained Soil....	1·49	4·06	2·79	2·89

Again, it was ascertained that the soil of a bog unstirred remained uniformly at 46°, but where it had been dug to a depth of three feet, the temperature of the air being 65°, at seven inches deep the soil was 55°, and at thirteen inches 51°.

We have said enough, we think, to explain why drainage is beneficial to cultivated crops, and in previous numbers we have shewn the different decompositions which occur in wet and dry soils, and how much more beneficial to vegetation those are in the latter; we, therefore, now turn to the practical part of the subject, and it is especially for the purpose of recommending to our readers a little shilling volume just issued from the press, *Land Drainage, Embankment, and Irrigation*, by JAMES DONALD, Civil Engineer. It is the best little manual on the subject we have ever perused, and gives every useful information on the principles and practice of draining; the size, distance, and direction of the drains; the comparative value of tiles, pipes, and other agents for effecting the drainage; the cost of drainage, and its profits. From this last named chapter we will, in conclusion, make one short extract:

"In various districts of Scotland now drained almost throughout, much land, which only a few years ago was wet and stiff, and considered unfit for the growth of turnips or other green crops, has, by thorough draining and more perfect tillage, been made more valuable than the light and naturally dry land around it. Its culture, although better done, costs less than formerly. Manure has full effect upon it, and almost any kind of crop can be grown with certainty and advantage. Formerly it was liable to bind together and become hard and tough after a single day's rain, but now it possesses only a proper degree of consistency, whilst its stamina has been developed, and its fertility called into action; and whilst under good management, it is scarcely inferior to the lighter soils in the growth of turnips or potatoes; it may produce heavy crops of beans, wheat, or clover, when the lighter soils fail in doing so; but such soil, nevertheless, requires perfect tillage and liberal manuring to make it highly productive; every detail must be carried out to suit the requirements of the case. Badly done work of any kind will not answer even after draining."

GARDENING GOSSIP.

AT the last meeting of the *Society for the Encouragement of Floriculture in Great Britain*, J. Davidson, Esq., in

the chair, there were a goodly number of members present. The chief subjects of discussion were the threatened infliction of two more dealers' societies for giving characters to new flowers, by which the amateur purchaser of novelties has been already so severely taken in, and a series of articles which are going through one of the periodicals, and which are considered grossly deceptive. The list purports to be a statement of what flowers may be purchased, and what should be avoided. In Pinks it displays the greatest ignorance and injustice, and it was unanimously denounced as a gross attack on trade. It was properly remarked, that there could be no objection to any man, however ignorant he may be of the subject, giving his opinion, and recommending good ones, or such as he considers good; but for any man to condemn a long list of flowers that on his dictum we are to avoid, is perfectly unjustifiable, and more especially as there are among them many better than those, he says, are good. It was observed, truly, that the dogmatical tone assumed by the writer would come ill enough from any one of experience; but from one who necessarily acts from hearsay, and is made the catspaw of a few favourite dealers, it could not be too much reprobated.

Mr. Bucknell explained a *method of producing bottom heat for growing Pines*, which he had successfully adopted. It consisted of an iron hot-water pipe, and return in the pit which was then two-thirds filled with very large stones as big as four-pound loaves; then a layer or two of smaller ones; and within a foot of the top a layer of peat turfs, top downwards, and on these the proper thickness of soil in which to plant the Pines. These stones once heated retain heat a long time, even if the fire were let out. The heat thus attained can be kept at 100° with ease. Means were also pointed out to supply moisture and steam; it saved the entire expense and trouble of tan. Mr. Lockhart called attention to the numerous varieties of *early Tulips* which were now rapidly advancing towards flower in the open air, and to the great diversity of colour which they comprised, having, as he observed, far greater extent of colours than the late choice kinds, and blooming before many of the other early bulbs. It was announced that the Kingsland Branch of the Society would meet to elect three judges on the 18th instant, to complete the board of twelve; and that the meetings for the show of seedlings would take place the first Tuesdays at their rooms Salisbury Square, and the third Tuesdays at Kingsland, through the season.

At the last meeting of the *South London Floricultural Society* the report was more favourable as regarded the funds; and above twenty pounds were ordered for distribution in prizes for their April show.

The *Royal Botanical Society* having found the advantage of the extensive show of American plants, are this year experimentalizing on *Roses*.

Messrs. Paul, Rivers, and Lane, have each made a plantation bed. We doubt exceedingly whether they will succeed in producing flowers half so fine as they anticipate; and if they fall short much, it will have a bad effect on buyers. Our opinion is that they will not bloom in perfection in that locality. American plants are very different. In the olden time, when the present site of the gardens was a nursery, they could always grow Americans well, and could not grow Roses at all. Whether it is better drained now, or a soil better adapted may assist them a little, remains to be seen. They are to be shaded, to prolong the bloom, if there should be any.

Some of the rose dealers complain of the papers that have appeared in a contemporary, recommending those Roses only which continue in flower all the summer and autumn, and say that it has greatly damaged the sale of those which only bloom a month. But exhibitors must not forget that it is on those very rejected Roses they must depend for the grand specimens which are exhibited in June and early in July. We cannot show twenty-four sorts at these exhibitions without summer Roses. Continuous bloomers are excellent for the garden, but not for single blooms.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

Rogier's Barbacenia (*Barbacenia Rogierii*).—*Gardener's Magazine of Botany*, ii. 209.—This genus was named by a Portuguese botanist, Vandelli, in a work on Brazilian plants, in compliment to Don Barbacena, then Governor of Minas Geraes; and the specific name was lately given in Belgium, in compliment to M. Rogier, one of the cabinet ministers of King Leopold, to whose memory a genus of Cinchonads has also lately been instituted by Dr. Blanchon, called *Rogiera*, with terminal heads of fine red rosy flowers, after the manner of the old *Ixora coccinea*, but, apparently, a plant much less difficult of management.

The Barbacenias belong to a small natural order of plants, proposed by Dr. Brown about forty years since, called *Blood Roots* (Hæmodoraceæ), a term suggested by a genus named by Sir J. E. Smith, *Hæmodorum*, from *haima*, or *aima*, blood, and *doron*, a gift; in allusion to the roots or bulb-like corms, which are used as food by the natives of the Swan River settlement. When roasted, they are said to be wholesome and nutritious, though harsh and acrid in the raw state. Blood Roots become thus a natural gift to the poor benighted heathens in Australia. They occupy a midstation between *Irids* on the one hand, and *Lilyworts* and *Amaryllids* on the other. Those of them which more immediately come nearest to Irids, in being triandrous, or possessed of three stamens only, have the opening of the pollen anthers facing the style; while in the true Irids the anthers are always faced away from the style. But such as are hexandrous, or have six stamens, like the *Lily* and *Amaryllis*, do not show the usual distinction between the sepals and petals, and yet have their leaves always equitant, or edge to edge, as in Irids. Besides, in most instances, the flowers are covered with a woolly down, as in *Anigozanthus*. Here it may be useful to remark, that Blood Roots are divided into three natural sec-

tions; the first of them being the true Blood Roots, with smooth flowers; the second having woolly covered flowers, like Anigozanthus just mentioned; and the third section, to which *Barbacenia* belongs, have the leaves much after the manner of the Pine apple and other Bromelworts; so that, in the absence of the lily-like flowers in our wood cut, the plant could not be distinguished from a Pitcairnia. In South Africa there is a race of dwarf tree Aloes, branching by forks, or dichotomous, Haworth's *Khipodendron*, and on the opposite coast in the Brazils, are a similar race of dwarf tree or perennial Lilies, as Martius calls them, named *Vellozias*, which also branch in two's of equal size, having their leaves in tufts at the tops of these gouty arms. Imagine an African Tree-Aloe, with a stem as high as a man, and as thick round as his body, branched out at the top to the diameter of from ten to twenty feet, and you have the image of these tree lilies, the *Vellozias*, to which our *Barbacenias* comes nearest in affinity and also in stature in some instances. The Barbacenias in our gardens give no clue to the stature some of them attain in South America. Sir Robert Schomburck met with a Barbacenia in British Guiana from ten to twelve feet high, and he named it *Alexandrinæ*.

A selection of South American Barbacenias and Vellozias, or tree Lilies, with the New Holland *Blancoas* and *Anigozanthi*, so much alike as not easily to be distinguished from each other, with the *Conostyls* from the same quarter, together with a selection from the allied Bromelworts, such as *Pitcairnias*, *Æchmeas*, *Tillandsias*, *Guzmannias*, &c., would form an interesting group for a small house. The Australian part to be kept at the coolest end in winter, and turned out amongst rockwork, in the front of the house, during the summer; with which, also, the different species of dwarf Tree-Aloes from the Cape would well associate. Without going to the expense of providing for the *Vellozias* and their tropical allies, we often wonder that the more hardy race thus pointed out have never become fashionable in this country for turning out into geometrical small gardens, where they and all around would harmonise so well.

Barbacenia Rogierii came to England, in 1850, from Mr. Van Houtte, of Ghent. It is probably a native of South America. *Leaves*, like those of the Jonquil, narrow and pointed, imbricated, that is, closely lapping over each other like tiles; edges finely toothed. *Flower* stem shorter than the leaves, pimpled near the top, single flowered; *corolla* lobes deeply two-cleft, pale claret colour. Propagated from sucker-like side shoots, and thriving in a moist stove in turfy peat and loam.—B. J.

THE FRUIT-GARDEN.

The Peach-house.—Those who possess a luxury of this kind will be watching with some anxiety the swelling of the young fruit; and at the same time their attention will be drawn to the necessity of what is termed *disbudding*—a proceeding which, with all healthy trees, becomes an imperative course. And why imperative? the beginner may ask. The direct answer is, merely because the trees produce too many shoots The space assigned to artistically trained trees is not sufficient for that due exposure to light of every shoot which is requisite, in order to render the tree fertile in the ensuing and subsequent years.

Although intending at this moment to furnish remarks principally applicable to Peach-trees in a forcing-house, yet much of the practice will equally apply to those on the walls out of doors.

As has been before observed, the process termed disbudding is one which must be performed with caution. The immediate effect of disbudding is, generally, to increase the strength of the remaining shoots for a short period. This, however, is done at the expense of vigour of constitution. Such may not be immediately perceptible in young or free-growing trees; but in old ones, or those which have carried heavy crops, the case is different. Indeed, it would not be a difficult matter to destroy or to completely break up the constitution of the latter by a heavy disbudding performed at one operation. Therefore, let the beginner of this practice proceed cautiously.

The following may be considered safe maxims to guide the inexperienced:—

1st. Commence disbudding as soon as the shoots can be distinguished.

2nd. Perform the operation twice a week until the object is gained.

3rd. In all doubtful cases be content with merely pinching off the terminal point when the young shoot is a couple of inches in length.

In commenting on these maxims, it must be borne in mind, that all shoots removed from trees during their development, and consequently before they can have performed the office of assimilation, are a sure present loss to the tree. Here, then, is a reason why, as in Vines, superfluous spray should be removed or pinched betimes. Since, however, there is a constant reciprocity of some kind going on between the roots and the branches, whilst trees are in a growing state, it is evident that a severe disbudding must, for a while, tend to disturb that reciprocity, and to paralyze, in some degree, the functions of the tree. Thus it will be seen why twice a week is recommended; and this we think safe and necessary advice. The pinching or stopping of doubtful shoots was before alluded to. We speak not here of stopping the over-luxuriant shoots or robbers; this is, in general, a subsequent affair. Old practitioners know at a glance what shoots to disbud, what to pinch or stop, and what are indispensable as to the next year's crop; as, also, the repairs of any deficiencies which may occur in the form and character of the tree. Not so the amateur; for although the whole treatment seems so plain to a practical man, we have been repeatedly astonished to observe the difficulties which appear to arise in their attempts to distinguish the shoots. Indeed, it is so with many gardening processes; those who cannot comprehend are apt to think the whole an empirical proceeding. It must be remembered, however, that it is one thing to comprehend principles in the abstract, and another to apply them to details successfully.

The first proceeding with strong and healthy Peach and Nectarine trees is to rub off what are termed "foresight" shoots. These are abundantly produced in most cases, and are readily known by their generally projecting from the tree at nearly a right angle; whereas those best adapted for future bearing proceed almost in a training position at once. The foresight shoots, indeed, merely receive their character from circumstances, and would speedily, on a standard tree in a state of nature, make an effort to become future leaders. Such, therefore, are greedy monopolists, and detract much from the more useful energies of the tree bearing wood. To be sure, if their points be pinched off when about three inches in length, they are capable of furnishing good bearing wood, at least in the succeeding summer, and of sustaining a healthy fabric in the tree; and wherever any doubts exist as to the propriety of retaining such, as a nursery of future shoots, by all means let the shoots have the benefit of that doubt, and retain them, pinching off their points immediately they have developed some three or four leaves. Those for which no *real* occasion exists must be at once rubbed away; and now a thinning out of even the proper or bearing shoots must take place.

Two or three points must influence the selection. The first we will suggest is, that every precaution be taken to secure successional wood at the lower portions of the tree. Almost every young shoot, therefore, which is situated lowest on any given branch must be carefully preserved; and if it should show signs of overtaking the shoot next ahead, then the best practice is to pinch off the point of the lowest shoot, and it thenceforward becomes a nursery or shoot in reserve.

Commencing, then, at the lowest point, let the hand be passed carefully upwards in the act of disbudding; first removing one of twin shoots, then a slight "singling out," as root-crop growers do their drill carrots; and in the lapse of a few weeks scarcely a shoot will remain but what will be requisite for the pruning ordeal of the following winter.

We must now recur to the method of *stopping*. Our practice is to stop at all times any given shoot which threatens soon to proceed side by side with any useful shoot in advance of it. Those who lay their young shoots in by the dozen, for fear they *might* be wanted, in due deference to the wisdom of their grandsires, will be doubtless very cross with me for thus promulgating what they very possibly may be inclined to deem gardening heresy. So be it. We are not for mere proselytism, but for common-sense proceedings, backed by successful practice, and led on by the sound deductions of vegetable physiology. And if we fail in proving this theory according to the most approved mode of our schoolmen, we happen to know that it tells well in practice. *Thin well*, then we say, in due time, and *stop well*; do not hesitate.

Of course, the approach of the *aphides* has been watched: these pests are sure to come. We advise our readers to fumigate lightly two successive evenings, as soon as the fly appears; remembering that delays are peculiarly dangerous in this case. The *red spider*, also, will probably pay his visit about the period of full development of the foliage. We know of no better appliances than free syringings, and the use of sulphur on the pipes or flues. The latter article should be timely applied; but with the caution given at p. 353.

Syringing is an important affair in Peach culture; and most good cultivators actually "batter" thin trees by a strong action of the syringe, worked right and left all over the house. As long as this is not carried far enough to injure the foliage, it is good practice, and may safely be used every evening up to the period of the fruit turning colour.

One thing must be observed bearing on the syringing question: there must be no coddling through the medium of a confined atmosphere. Wherever copious syringings are employed, just in proportion, in our opinion, should be the amount of ventilation shortly afterwards. Good peach growers are very partial to a good dowsing with the syringe as early in the afternoon as the sun will permit on bright days; the house being immediately closed, and perhaps no air given until the following morning about seven. Some give the trees another dash with the syringe in the morning, provided the air of the house is moderately dry. The morning syringing is, however, in our opinion, a proceeding sometimes more honoured in the breach than the observance, though it is, doubtless, good policy, any time after the beginning of March, if performed early in the morning, and followed by liberal ventilation, more especially in the anticipation of bright days. At other times we should say resort to the damping of floors, and other modes of raising as much humidity in the air as will counteract any injurious effects which an attempt at what is termed forcing may create.

To conclude for the present, we may add—Ventilate! Ventilate! No tenant of the forcing-house better enjoys a free atmosphere to breathe in than the Peach.

R. Errington.

THE FLOWER-GARDEN.

Roses for Flower-beds.—After the fancy geraniums, the next greatest improvement and novelty, in many cases, is the use of *Roses* having decided colours; each kind in a bed by itself; or a red or purplish kind, with a border all round of white roses. Of all the white or light-coloured roses, either for an edging or for a whole bed, there is none so good as the *Old White China*, which, as far as I know, has no other name; it has not been mentioned in rose catalogues for many years, unless it be under some strange name which I do not recognise. It is one of the earliest to open in May, and the last of all of them to fall before the frost in November; it never rests through the season, and it is the longest to live of all the dwarf roses I know. There are about a score of plants of it in the flower-garden here, which have been in the same bed for the last fifteen years, and only taken up twice during the time, in order to renew the bed, and to cut in the large roots and strong branches. As we do not require these rose beds to be in bloom early in the summer, the plants are closely pruned towards the end of April; but they answer very well to be cut in March, and will be in bloom three weeks sooner if pruned so early. Even then a cold late spring does not hurt them, but only keeps them back so much. It is only when one is tempted by an early fine season, such as we experienced last February, to cut them before March, that late spring frosts hurt the tender growths; but let us say the first week in April is a good time to prune all the China and dwarf Bourbon roses in flower-beds; and that also is a very good time to plant a bed of them for the first time, provided you have strong two-year old plants for the purpose; but, if the plants are younger and small, the end of April and the early part of May is a better time to turn them out.

The next best white rose for an outside row is *Aimée Vibert*, a dwarf Noisette rose, which is always in bloom in thick clusters; and the best white flower among all the China breed of roses is *Clara Sylvain*, a true dwarf China. The flowers of this are as large as those of the old white China, much better shaped, and also more scented; but the plants are not so vigorous or so hardy. I had them twice cut down to the ground by the frost, when the old white stood unhurt.

No one seems to like *Gloire de Rosamene* for a bed; but by a particular management it makes a splendid bedder, indeed the very richest of all the roses. For bedding, this rose should be treated as a biennial, and no more; that is, to put in cuttings of it every year in April (they will root anywhere, if you stick them firm in the ground), and to plant them in the flower-bed next March, or whenever the bed is ready for them in the spring. Then, from the first of June to the end of August, every shoot which looks very strong, and is likely to run away with the sap, as gardeners say, must be stopped when it is six inches long. In this way all the shoots over a whole bed need not differ much in strength, and they will not stop from flowering in July or August, as this rose is apt to do when older plants are used. After the beds have done flowering in December, the plants must be disposed of, for all the gardeners in the country could not make a regular bed of them the second season, if the soil was ever so poor, and I do not think there is a rose known that will do better in the very poorest soil than this; and it would grow in rotten dung without any soil at all; it is no matter, therefore, for this rose where you plant it *as a biennial*. On thin sandy soil the plants should stand at six inches apart every way, or even thicker, and nine inches between plant and plant will not be too thick for a good bed of the richest soil, that is on the understanding that the same plants are only to flower one year on the same bed. A border of the old white China, planted round a bed of *Gloire de Rosamene*, thus managed, is the very best combination of rose colours I know of; and in a mild autumn both will go on flowering down to the end of November, and I have had them in good bud for bouquets in Christmas week.

One would require to be intimately acquainted with the habits of different roses on the same soil, before he

could plant a mixed bed of very distinct kinds. It is for this very cause that I have so often backed out of questions which have been sent, asking us to name so many kinds for one bed. What my experience, or that of any one else, would show on a particular soil, might very easily lead a third party quite wrong in a different locality, but with the single exception of the *Gloire de Rosamene*, this does not hold good with the China breed of dwarf ones. For the bedding purpose, I look on the *Gloire de Rosamene* as a true China, although they call it a Bourbon in the catalogues. Once we get among the true Bourbons, we enter on the difficulty of making good mixtures for one bed.

Mrs. Bosanquet and *Barclayana* are two old light-coloured Chinas, but not pure white, well adapted for beds, or for edgings to the dark red ones, as they are constant bloomers, and grow without making rambling shoots. *Barclayana* has not been in the catalogues for many years, but many gardeners prefer it to newer ones for beds. I had it first from Chatsworth, where it was a great favourite, and I believe is so still. These are certainly the cream of the white bedding roses of this class.

Among the red ones there is a great variety for choice, and the *Old dark red China*, which is seen all over the country trained up against the front of cottages, makes as good a bed as any on the list; and *Henry the Fifth* is the best to mix with it, plant for plant, as they grow exactly alike. The latter is a shade more red, and has a light centre when the flower is full open, and sometimes a light stripe here and there: all this with the dark-red of the old one has a fine effect in a bed. *Madam Breon* is one of the best rose-coloured Chinas for cut blooms, and some are fond of it for a bedder, but with me the flowers seem too heavy for the stalks, so that it hangs down too much to show to the best advantage, but on strong soil I should think it would make a fine bed. *Archduke Charles*, *Cramoisie Superieure*, *Prince Charles*, and *Abbé Mioland*, have four shades of red crimson which assist each other very much in a bed, and I would rather have the four mixed than any of them by themselves in a bed; but the four have the bad habit of making one or two strong shoots from the bottom if they have their own way. This should never be allowed in a bed of China roses, otherwise the symmetry of the bed is all gone. Stop the strong shoots when they are under four inches, so as to keep them close and bushy to the ground, as they never look rich or well managed if you can push a walking stick into any part of the bed without touching a shoot. *Eugène Beauharnois* and *Belle de Florence* are two which answer pretty well together, they are a shade lighter than the reds and crimsons. For a very small bed of one sort *Fabier* is unquestionably the best; it might be called the little grandson of *Gloire de Rosamene* without inheriting its manner of making strong shoots here and there. Plants of *Fabier*, three or four years old, would make a good mixture with biennial *Gloire de Rosamene*. Both of them have good light centres, and *Fabier* is more double, with a well-marked stripe in the petal. Out of the above a nice shaded bed might be formed, and these shaded beds, of whatever kinds of flowers, look best in circles. Then three plants of the strongest and darkest should stand in the middle, say of *Cramoisie Superieure;* after that two rows of *Abbé Mioland*, or *Prince Charles*, for a lighter shade, followed by one row of *Belle de Florence*, and another of *Eugène Beauharnois*, then *Mrs. Bosanquet;* the outside row to be either *Aimée Vibert*, or the *Old White China*. If of the latter, the plants to be quite young, as it is a strong grower.

The best way to prove Roses, Geraniums, Verbenas, &c., for shading, is to begin by planting one of each along a border by the side of a walk, the border to be of uniform richness throughout; to regulate the growth by stopping strong shoots; training others, either down or upwards, and then to watch their habits, and colours, and shades, both when they first open their flowers and as they fade away, and to mark all peculiarities and memorandums about them, *on the spot*, in the garden-book. One or two seasons at this kind of gardening would teach more than all the writing and reading of a whole year, for there is hardly a family of plants but shows something different in one place which is never seen in another. Besides, to learn the real art of thinking for oneself is one of the greatest secrets among the best gardeners, and without that, in some degree, one may be led by the nose for a whole lifetime, and not be much the wiser after all.

Geraniums for Beds.—From my own notes on the large florists' geraniums for the last four years, I am enabled to say confidently that the *Priory Queen*, a lightish one, is the very best of them all for a good bed. *Rising Sun* is the next best, and *Madeline Superbe* the third best. The latter is a very dark red one, that is, very dark back, and deep red front petals. The *Rising Sun* is a light red, and much of the same colour all over. I crossed the three among themselves and with others which I thought likely to answer for raising bedders from, but all to no purpose, and I think it is quite useless to fight with this class, although I have no doubt but the florists themselves often get a bedding variety out of the thousands they get from seeds, but which they destroy as soon as they flower for fear they should spoil their breeders.

Among geraniums the great desideratum is to get *a really good white one for a bed.* There is not yet a single white geranium fit for a bed. Once last year, while lamenting the want of a white bedding geranium, I said that I had just seen one seedling which came up to my standard, and that the largest leaf on the plant might be hid under a shilling. Very fortunately this seedling is a breeder, and I may now congratulate my friends on the certainty of having soon a choice in this class and colour, as sure as we now have in the scarlets.

Another piece of good news about bedders is, that a London breeder sent me lately leaves of a new class of seedling geraniums which have not flowered yet; but if he is quite sure of the parents, I hesitate not to say that he has found his way into *a new strain* that none of us have yet hit on. Of course this is crying "chick, chick," before the eggs are hatched; but I have staked what little credit they give me as a breeder, on the issue, by sending him word about the best and most promising of his batch from a mere sight of single leaves.

I wish I could write so as to entice young gardeners and amateurs to embark in *cross breeding of flowers;* no matter what class they take in hand, or what failures they may meet with. I promise them, from my own experience for twenty long years, that there is an endless source of enticing amusement before them, very innocent in itself, and which may add to the gratification of others some day or other. But to be and continue so they *must* keep clear of speculation, and never think of turning a single penny by their seedlings. Of course those who make their living by raising and selling plants, must look to who is to pay the piper; but that is altogether a different thing from taking up the pursuit for recreation and amusement.

In the flower-garden itself people will be very busy for the next six weeks, and for the sake of looking tidy in a hurry we often put off jobs which do not appear to us to be in immediate want of attention. Those who are much troubled with *moss on the lawn* had never more reason to apply an early remedy to keep it down. In all my experience I do not recollect a winter more favourable to the growth of mosses than this one; a low moist atmosphere and steady temperature throughout, has encouraged the moss to grow rapidly ever since the

e was put by, and now if the first mowing is put off
ne grass looks as if it must be done, the whole
m of the blades will have blanched in the moss, as
r as rhubarb or seakale under pots and boxes.
if cold easterly winds come on after the first
ng, and next May and June turn out to be very
this blanched bottom cannot possibly bear up
st it, and the consequence will be that the finer
of grass will be ruined, and the coarser sorts have
for themselves. Early mowing, even where no
s of moss can be seen, is one of the great secrets for
ng the grass fine. I saw a newly laid down flower-
n, ten days ago, where the crop of Italian rye-grass
l make a good bite for a flock of sheep, and the
r, a scientific gentleman, believed that this strong
was favourable for nursing the finer kinds; I
ed out to him that there could not be a greater
Lawn grass does not want nursing; the true
of nursing grass under the scythe is to let every
of it have an equal share of light and air. The
ng machine is far better than the scythe for the
utting or two where moss is getting ahead, because
oss is so elastic that it yields under the scythe,
is up directly behind the mower to blanche the
r grass as before. First of all have the lawn run
with old stumpy brooms, or a brush harrow, then
clean and roll it two or three times, and next day
it to cut. D. Beaton.

THE ROSARY.

L FOR AND TRANSPLANTING ROSES.—Mr. Appleby
ne right nail on the head the other week, when he
l emphatically—"A good deep loamy soil, with a
ottom, is the best soil for the rose." In no other soil
hey flourish for any length of time, without greater
nds upon the compost-heap and the manure repo-
than can well be spared, except roses constitute
ll-in-all consideration; for then they may *be made*
urish in any soil, however naturally unpropitious.
ne very best of soils they are hungry fellows, like
orseleech, ever crying, Give, give; and hardly
ing acquiescence, did you even rob your celery of fine
nposed material to enrich them. In all soils, but
ially in hungry, light, and gravelly ones, they dearly
regular soaking several times with manure-water
the first of April. The rose dislikes stagnant
, as much as being left in a dry state. Hence for all
lly and chalky soils, wonderful as are the effects
ge dressings of good dung, yet for a permanent
t nothing beats a moderate dressing of clay, nicely
l and divided with the staple soil. When large
es of bloom, rather than fine specimens of flowers
anted, the plants may be allowed to grow large and
in a long period in the same place. When fine
idual blooms are wanted, the plants must not only
ept close pruned near home, but should have the
ege of having fresh pasture ground every three or
years. The rose rarely does well when mixed with
flowering plants, unless they want treatment
ar to themselves. I have attempted to combine a
y of tree roses, and other flowering plants beneath,
with anything but satisfaction. Roses, to be fine,
have the ground to themselves, and then you can
them the rich treatment they like and deserve.
re alterations are suggesting themselves, roses may
e *moved* with perfect safety, provided they are rather
ly pruned, and a branch of evergreen is put over
for a week or two. The hedges may also now be
cked for *briar stocks*, and planted in good soil for
e budding. R. Fish.

GREENHOUSE AND WINDOW GARDENING.

General Management of the Greenhouse.—Among the characteristics of our times, the spirit of criticism, and the prevalence alike of the attempt and the desire to make knowledge easy, holds no inconspicuous place. The ability to criticise comes more easily to the many, than the family inheritance of acres and wisdom descends upon the few. My apprentice master used to say "a fool can find or make a flaw in a wise man's greatest work." The danger is that criticism let loose, is too apt to beget in the critic an over-complaisant opinion of his own transcendant powers, and thus becomes not an *incentive*, but a *barrier* to progress in all that is ennobling and refining. Everything is extremely simple to a critic before he tries it; and then it will frequently happen that the greater the simplicity the greater his difficulty, unless he valiantly cuts the knot by boisterously disparaging what he cannot understand. We now and then meet with a full-fledged specimen. Ladies, in the height of enjoyment in a flower-garden, are engaged in admiring and remarking upon the contrast and shading of colours in groups of flowers, as only ladies, with their acute sense of the beautiful, can do. A gentleman unexpectedly joins them. Beauty! pshaw! he can see no beauty. That! why it is a mere weed. This! trumpery. The others! trashy. Green carpeted lawn! stuff. Give him the hillocky meadow, the rough ploughed field. As he uttered these outpourings of oracular critical wisdom, he was above noticing that the smile of enjoyment was exchanged for the blush of indignation.

Very different are the reasons which have led to the heading of this article. A correspondent, in an interesting letter, part of which has been already referred to, wants some general rule or rules as to potting, pruning, watering, resting, heating, and ventilating greenhouse plants; confesses that at one time he thought himself *au fait* in gardening, and capable of managing any plant, but that *now* he feels quite *puzzled*, and despairing of following out in detail ample directions for each particular family; he thinks that *mediocrity* at least may be realised by attention to some general rules respecting greenhouse management, and that obliging him would oblige many others in a similar predicament. Now, valuable as general rules are, and anxious as we are to meet our readers' wishes, I must honestly state, that attention to general rules will seldom carry the lover of plants to, and far less beyond, mediocrity, unless, from the experience of others or his own experience and practice, he is enabled to reduce *general* into *particular* rules. There are general rules for the management of a menagerie; but without attending to the appropriate and particular wants of the different inhabitants, there would soon be gaps in the establishment. So it is with plants. Who, for instance, would think of treating in a similar manner an *Epacris* and a *Pelargonium*? The desire of our correspondent is a very laudable one; only let him neither expect too much from it, nor yet be contented with mediocrity. The feeling is very natural in these knowledge-made-easy times, and especially as respects gardening, about which every body understands as if it were by instinct. For ourselves we can state two facts; first, that as we get older, we see our deficiencies more; and, secondly, that even in these knowledge-made-easy times, and grateful we are for them, no knowledge really useful, or that will minister to a refined enjoyment, can be attained without study and labour; and if this holds true in any thing, it holds particularly true in gardening. General rules are admirable; nicety in detail, attention to trifles, are everything. Should this be a damper to young aspirants? No; but it may teach the wisdom of not attempting too much at once. A few families well

managed are far more interesting than a large collection distinguished for nothing but, perhaps, general inferiority.

The *Greenhouse* is a light airy structure designed for plants from comparatively temperate latitudes, and high altitudes in tropical regions, which can sustain a lowish temperature, but cannot withstand the vicissitudes from frost to sunshine, and from damp to dry, of our common winters. It is distinguished from a *plant stove* in requiring but little artificial heat; and from a conservatory in having all the plants (with, perhaps, the exception of climbers for the rafters) grown in portable pots or tubs, and these generally set upon a stage to bring them nearer the glass.

The mode of *constructing* such a house must be regulated by the wishes of the proprietor, and the conveniences at his disposal. For general purposes any aspect will do in an emergency, except the north, and that might be selected for those plants that delight in the shade. The more command of light, with the means at hand of contracting its fierceness and heat when too powerful, the better. From due south to south-east and south-west, may be considered the best aspects. If it is a lean-to house, having a sloping roof from a back wall, it should always have a considerable amount of upright glass in front to receive the oblique rays of the sun in winter. By the side of a cottage ornee the front of the house may thus partake of the same style of architecture, while the shed-like sloping roof may be exchanged for a ridge and furrow one, and that concealed from external observation by a light entablature or frieze work. For a neat detached structure it should stand, less or more, north and south, have a ridge and furrow roof, and means for breaking the sun's rays in the morning and afternoon. We are supposing it to be glass all round. When in connection with other buildings, a very useful and elegant house is formed, having the front and ends of glass, a hipped roof, and an opaque back wall. Here, likewise, by an ornamental entablature, the roof, if desirable, may be wholly or partially concealed, so as not to interfere with architectural propriety, though we should have no great scruples on this score, as the utility of an object, if apparent, gives it appropriateness.

The size of the *glass* to be used must depend upon the taste and the money wished to be spent by the proprietor. For the roof, especially, it will be desirable to have it at least sixteen ounces to the foot. Small squares can be procured in boxes very cheap, as seen in the advertising columns. These are the waste from cutting large squares. There is, however, a drawback to the seeming advantage. What you gain in glass you will partly lose from requiring so many sash-bars. Large squares of glass are very pleasing, and glass merchants will let you have them of almost any size. We should not care about having them much above eighteen inches in length, as if much larger, when one is broken it is a crash indeed. All things considered, if we were to roof a house most economically, we should obtain strong machinery-cut sash-bars, dispense with rafters, use glass from fifteen to eighteen inches wide, and say a foot in depth, and secure means of ventilation without touching the roof, by means of the upright glass, and wooden ventilators at the ridge in the roof, and in the back wall. I cannot speak experimentally of the rough patent glass, but I have seen a good portion in use, and the gardeners say they have light enough for anything. If so, the getting rid of shading will be getting rid of a great annoyance.

Stages.—These are generally shelves, arranged in stair-like fashion, partaking less or more of the character of the roof. For a general collection, the stage may be from five to six feet from the glass roof; for insuring dwarf, compact bushy plants, the distance should be from three to four feet. The lowest shelf of the stage should be a little higher than the shelf that surrounds the house next the front glass. Where the roof is *hipped*, even though the back wall be opaque, if the house faces the south, the stage should be hipped too, terminating in a single shelf, broad or narrow in the centre. The north part would be admirable for *keeping* many plants in winter, and exhibiting in summer those that were in full bloom. In a wide house it is always preferable to have several stages, in the shape of circles, ovals, or triangles, whatever is most approved, with walks between them. The greater expense, and the room apparently lost, are more than made up by the ease with which all the plants may be examined, and the greater thickness with which they may be safely set, as the pathways will be so many breathing zones. For low-hipped roofed and ridge-and-furrow-roofed houses, flat table-like trellised stages will be the best; the highest plants being set in the centre, or, if necessary, one being placed now and then on a pot. As an improvement on this, where extreme economy was the object, we would dispense with the wooden trellis, and substitute a bed of earth, kept in its place by brick-walls, the earth being first covered with cinders, and then with pure sand, on which to set the pots. The damping of this sand from watering in summer would be a source of health to the plants, and save them from many visitations. Small inclosures in such an earth-pit, if suitable compost were used, would be a splendid place for the less hardy creepers, which would be likely to maintain a lingering existence if planted as they sometimes are in a border close to the front wall.

Temperature.—This must be regulated by the object aimed at. If merely preserving the plants is the object, then artificial heat may only be applied to maintain a temperature of from 35° to 40°. This low temperature must not, however, be long continued in a stagnant atmosphere. It will, therefore, be necessary to raise the temperature to admit air during the day. Where it is desired slowly to grow the shoots, and to keep a winter display of plants in bloom, the temperature must not sink below 45°. In either case a rise of 10° or 15° may be allowed for sunshine in winter. In summer the chief difficulty will be to keep the house cool by admitting all the air possible, and having it on night and day. If the plants are turned out into pits and shady places, and even very sunny places if their nature requires it, and their place is supplied with tender annuals, &c., then more closeness and moisture must be obtained—a limitation of air and plenty of moisture giving all the essentials of a plant stove.

Mode of sustaining Artificial Heat.—The best, because the most equal and the cleanliest, is hot water; and the simplest of all is the best: a compact little boiler, well set, and a flow and return-pipe on the simplest principles. A small boiler and two-inch or three-inch pipes are the most suitable for a greenhouse where only quick and occasional fires are wanted. With strange infatuation, hot-water men are *above* heating small greenhouses, except at a cost that is sufficient to terrify any amateur. I have corresponded with several of them, and all were to give the subject their best attention; but as yet nothing has come of it. Many advertise and tell how cheap their boilers are; but can they not tell what the price is, in proportion to their size, fitted with flanges to suit certain sized pipes? Everybody knows the price of metal, and what is the use of attempting anything like hocus pocus trades' craft. I have a small lean-to house, fifteen feet by seven, which has remained unheated, because the lowest tender I have yet had was fifteen pounds; while I considered the third of that sum quite ample, as I was to do everything but the iron-work. If I was near a foundry that would work reasonably to order, it could be done for much less; as thirty feet of three or five-inch pipe would be quite sufficient, and anybody could put them together. The man who will

issue a neat little boiler—to suit various sized pipes—to suit such little structures as I have indicated, and at a fair remunerating price, will have orders not in tens but hundreds. Without such be done, amateurs must take the matter in their own hands, or resort to the old smoke flues. Flues are far from being despicable conveniences. In some respects, in small houses, where a higher temperature is wanted at one end, than another, they answer better than hot water. When neatly built, they are no eyesore in a house. To insure draught the flue should be at least a third deeper than it is wide, and the mouth of the flue should be eighteen inches above the bottom of the furnace. A well-known first-rate neighbouring gardener has several of these small houses, heated by the smallest flues I ever witnessed. I cannot be positive now, but so far as I recollect, the inside of the flues were not above four or five inches wide, consisting of one or two bricks set on edges, resting on a tile. The floor is covered with paving-tiles. The flue is first covered with a thin tile or slate, and over that is placed the paving-tile on a level with the rest of the floor; a small space being left on each side of the lilliputian flue, and, Mr. S. says, nothing could answer better. I was in the houses on a very cold day, and they were very comfortable. They were cleaned merely once a year; the lowness of the furnace, and the narrowness of the flue, gave a rapid draught. If for our small parlour greenhouses we cannot obtain hot water at a reasonable rate—should fail in getting a good sized *kail-pot*, cast with a couple flanges—we mean to visit Mr. S again, and have a small narrow under-floor flue. Mind, we do not recommend such under-ground heating where much heat is required. As a criterion, in addition to what I have previously mentioned, I may state that, for greenhouses, one foot of four-inch pipe will be necessary for every forty cubic feet of air, making allowance less or more, according to the surface of glass, or the presence of opaque walls; or, in other words, taking the square foot of glass, it would require a foot of four-inch pipe for every six feet of glass; or a foot of a common flue above the ground for about ten or eleven feet of glass. R. Fish.

(*To be continued.*)

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS—*Continued from page* 358.

Dendrochilum filiforme (Thread-like D.); India.—A small genus of not very showy plants. The species named is, however, worth cultivating. The flowers are small, and of a greenish yellow, produced on very long thready stems, on which the flowers are placed very close. When in bloom they seem almost to hang in the air, and are exceedingly graceful and pretty.

Culture.—They require the same treatment as the Dendrobes; namely, a season of growth, a season of bloom, and a season of rest. The same compost of sphagnum, broken potsherds, and charcoal also suits them. During growth a moist atmosphere, plenty of water at the root, with occasional syringings, is necessary. The heat should be from 75° to 90° by day, and 65° by night. The moisture must be withholden when the growth is completed, and the temperature lowered to 66° by day and 55° by night.

Epidendrum.—We have again come to one of the large families of orchids. The species of this genus are chiefly natives of the hot moist districts of South America. Great numbers are found in Demerara, others in Brazil, some in the woods of Mexico, and others in the cooler regions of Guatemala, some in the West India isles, and a very few in India. As the name imports (*Epi*, upon; *dendron*, a tree) they are chiefly found growing on trees, and especially where the trees overhang a river or lake, the vapour arising from which feeds their roots and encourages them to grow and flower. This large genus, unfortunately, does not contain, in proportion to its number, such a stock of handsome plants and flowers as are found amongst the large tribes of Ærides, Cattleyas, Cœlogynes, Dendrobes, Lælias, Lycastes, Miltonias, Oncids, Saccolabiums, Stanhopeas, and Vandas. So few, indeed, are the fine species of Epidendrum, that a friend in Manchester, whenever he had a box of orchids from the Western Hemisphere, always complains of, as he terms them, the preponderance of "villainous Epidendrums." Yet, notwithstanding this sweeping denunciation, there are a considerable number of species of the genus that are really beautiful, and generally they have the advantage of being exceedingly and deliciously fragrant.

E. alatum (Winged E.); Mexico.—Sepals and petals dull yellow; petals and lip striped with purple. The flowers are of a medium size, and are produced on tall strong branching spikes. It is a pretty fragrant species. 31s. 6d.

E. aloifolium (Aloe-leaved E.); Guatemala.—Sepals and petals greenish yellow, changing to a rich brown; the lip is large, winged, and pure white. This is a pendant species, and will grow on a log or in a basket; but the finest specimen we ever saw was exhibited last year by Mr. Mylam, gardener to S. Rucker, Esq., and it was growing in a pot. Each shoot, or pseudo-bulb, was tied to and supported by a stout stick, which showed off the large flowers to great advantage. 31s. 6d.

E. aurantiacum (Orange-coloured E.); Guatemala.—Sepals and petals bright orange; lip the same colour, with a few stripes of crimson intermingled. This plant is found in Guatemala in exposed situations. Mr. Skinner, who resided for many years in that country, and during his stay collected orchids in great numbers, says, speaking of this plant, "Same habitat (native place) as *Oncidium leucochilum;* always found together, only that this plant seeks exposure, and therefore is subject to greater extremes of heat and cold; the finest masses, however, are always found on the steep brows of rocky barrancos." This is a pretty species, but the flowers do not expand properly. Mr. Brocklehurst, of the Fence, Macclesfield, had once a plant of it that, in addition to the fine colour, had the property of fully expanding its blossoms. 21s.

E. bicornutum (Two-horned E.); Trinidad.—Sepals and petals pure white; lip the same colour, with the addition of a few crimson dots. The flowers are large and fragrant. Some cultivators are of opinion that this plant, when in bloom, rivals the far-famed *Phalænopsis* in beauty. Be that as it may, it is by no means so easily cultivated. It is a difficult task to say which is the best mode to grow it; perhaps two combined would answer. First, put it on a block, and when the new pseudo-bulbs are half formed, place the block on the top of a pot filled with the usual compost of peat and sphagnum, but in a very rough condition, packing the rough pieces round the block, but not quite covering it. In this way we have seen a plant grow tolerably well. 42s.

E. calochilum (Beautiful-lipped E.); Guatemala.—Sepals and petals pale yellow, tinged with purple; lip crimson, veined with a bordering of yellow. A very showy, easily grown species. 42s.

E. cinnabarinum (Vermilion-coloured E.); Pernambuco.—Flowers crimson-scarlet, veined with brown. It is a tall growing plant, and the flowers are produced near the top of the stems in the corymb form. It is a a free grower; and as the stems, with care, may be bent downwards, the flower can then be brought into a position to be better seen, 21s.

E. cuspidatum (Pointed E.); Mexico.—Sepals and petals pale yellow, changing to a brown; lip white, beautifully fringed; and the flowers are very fragrant. They very much resemble those of *E. aloifolium*, only they are not fringed. 21s.

E. Floribundum (Many-flowered E.); Mexico.—Sepal brownish, petals white, lips white also with a curved line of reddish spots. A gracefully growing plant. Though the flowers individually are small, yet the long spreading panicle gives them a pretty appearance. 21s.

E. Grahamii (Dr. Graham's E.); Mexico.—Sepals and petals yellowish green turning to brown; lip white, long, and broad, undulated, and striped with red. A fine species but little known. The flower stems grow about eighteen inches long, and each flower is near three inches across. Very rare. 84s.

E. Hanburii (Mr. Hanbury's); Mexico.—Sepals and petals deep purple; lip pale rose with crimson veins. A fine species, with deep green roundish pseudo-bulbs, from the top of which the flower stems spring to the height of eighteen inches or two feet. 31s. 6d.

E. ionosmum (Violet-scented E.); Essequibo.—Sepals and petals of a dull red colour; lip the same colour and delicately sriped with deep lilac lines. The flowers are large, and have a scent like that of violets. Scarce. 63s.

E. macrochilum (Large-lipped E.); Mexico.—Sepals and petals brownish; lip pure white with a deep purple stain at the base. It is by far the most conspicuous part of the flower, being very broad and projecting well out from the rest. The flowers are produced on stems a foot high, and are handsome and fragrant. 42s.

E. macrochilum *var* roseum (Rose-coloured large-lipped E.); Guatemala. — This is a truly beautiful variety, like the other in every respect except the lip, which, instead of white, is of a beautiful dark rose colour. 42s.

E. oncidioides (Oncidium-flowered E.); South America.—Sepals and petals yellow and red; the lip is yellow. A fine species; the flowers are like those of *Oncidium luridum*. It is fragrant, and remains a long time in bloom. 31s. 6d.

E. pastoris (Shepherd's E.); Mexico.—Sepals and petals very narrow and sharp pointed, and streaked with purple on an olive ground colour; the lip is oblong, beautifully stained with purple on a cream-coloured ground. Very fragrant. 31s. 6d.

E. phœniceum (Purple-flowered E.); Cuba.—Sepals and petals light purple; the lip has a shade of the same colour running through it, mixed with a delicate pink and veined with crimson. This is considered one of the finest species of this large genus. The flower stem rises two or three feet high, branches, and the flowers are pretty thickly studded upon it. Each flower is large, and they keep expanding for two or three months. All these good points recommend this plant to the notice of cultivators as being well worth growing. It is, however, scarce. 84s.

E. rhizophorum (Root-bearing); Guatemala.—Flowers produced in umbels at the end of the shoots, in the same manner as *E. cinnabarinum*. They are scarlet, veined with crimson. This very handsome species has been long cultivated without its blooming. The reason for this is now obvious. It is a long rambling plant, and most likely runs up the branches of the trees in its native country, and as soon as it surmounts them then forms a dense mass, and blooms something like our common ivy does. Mr. Bassett, gardener to R. S. Hayford, Esq., with his accustomed sagacity, has hit upon a mode of growing this plant that assimilates in a degree to the above supposition. He places it in a kind of wide pan, and as the shoots grow, continually keeps them pegged down, at the same time placing the plant under the glass, by this means he blooms it finely every year, using the usual treatment of a moist warm atmosphere when growing, and a cool dry one when at rest. 31s. 6d.

E. Schomburgkii (Dr. Schomburgk's E.); British Guayana.—There is a considerable resemblance between this species, the preceding one, and *E. Cinnabarinum*. They possess in common a long stem, the flowers are nearly alike, and they flower in the same style. Notwithstanding these points of resemblance there are sufficient distinctions between each to warrant their separation. The *E. Schomburgkii* may be distinguished easily from *E. cinnabarinum* by the great number of dark-coloured spots on its stems, and by its larger flowers. The colour is also more brilliant, being bright scarlet.

T. Appleby.

(To be continued.)

FLORISTS' FLOWERS.

Carnations and Picotees.—The season for shifting them into their blooming pots has now arrived; the right compost we have repeatedly described, but for the benefit of our readers that may not have seen or read this description, we will venture to repeat it. Good light fresh loam, such as would be formed if a heap of turf, three inches thick, from an old pasture were laid up for twelve months and frequently turned; to which should be added one-fourth well-decomposed dung, and as much leaf mould. You will then have a first-rate mixture for carnations. If the leaf mould be un-come-at-able, then use a little more of the dung. A very small dressing of quicklime would be serviceable both in improving the soil and destroying insects. Look diligently out for their grand enemy, *the wire-worm*. The size of *the blooming pots* is from ten to eleven inches across; they must be clean, sweet, and perfectly dry. Place an oyster shell, or a large piece of broken pot, over the hole at the bottom of the pot, and about half an inch of drainage above it; then fill it with soil till there is just space left to allow the present ball to stand upon it level with the edge of the pot. Fill in the compost round the ball till the pot is filled; shake it down by a gentle stroke upon the potting bench; give then a good watering, and place the plants in such a position that you can readily protect them from any severe weather that may yet occur.

T. Appleby.

THE KITCHEN-GARDEN.

The weather this month has hitherto been most favourable for all kinds of out-of-doors work, and the soil having been prepared for the reception of seeds or plants, every corner or piece of spare ground should be without loss of time ridged, trenched, forked, and scarified, and no kind of sprouting *cabbages*, *savoys*, *kales* or *borecoles*, *swedes* or *turnips*, should be left to exhaust the soil any longer than is absolutely necessary. The late-planted *coleworts* and *early cabbage*, with a good piece of *spinach*, and naturally produced *sea-kale*, as well as the *young carrots*, *forced French beans*, and *asparagus*, assisted with a little heat and covering, will now be in request. On well-prepared light soils, *carrots* in full crop may be sown. The *Early Dutch*, *American*, and *Stone turnip*, also, may be sown on gentle heat or sheltered borders, with the soil well-prepared and pulverized. *Radishes*, too, in varieties, as well as *small salad*, should be sown in succession; and also *lettuce*, of which a succession should likewise be planted out. Finish planting *sea-kale*. Put in cuttings of *lavender*, *rue*, *wormwood*, *hyssop*, &c. Part the herbaceous herbs, and put the herb garden in good order; sow, also, *thyme*, *winter savoys*, &c. Sow *Kidney beans* for transplanting, on to slight hot-beds, to be protected. *Garden beans* and late *peas* sow in succession; those kinds already up, and intended for sticks, should

be attended to in due season; and as soon as the early varieties commence showing bloom, pinch out their tops if a dish of *extra Early peas* be required. *Salsafy, scorzonera,* and *red beet,* may be sown in small quantities. *Tomatoes* should be sown in heat, pricked off early, and placed close to the glass, sloped when about three inches high, and duly hardened off for planting out against walls or other close fences.

Framing.—*Cucumbers* sow in succession; keep the plants in health by placing them close to the glass, and by liberal airing; keep the vine of those ridged out stopped and pegged down, and do not allow those in bearing to be overcrowded; take out the superfluous and weakest fine carefully and at intervals, so as not to give any sudden check by over thinning at once.

Melons should be encouraged by maintaining a uniform kindly heat; stop and train the vine methodically. They should be so managed as to have several in blossom at the same time on each plant, to set and start together into growth; at which time they require more heat, to be shut up earlier, and the interior atmosphere for a few days to be kept drier. Take care that a sufficient number of plants are in readiness for all lights that are likely to become vacant, or that can be spared from the early *carrots, radishes, potatoes, asparagus, &c., &c.,* as those things may now be only temporarily protected.

Charring Wood.—Wood of any kind may readily be charred; the process is simple and easy, and may readily be understood by any one; any kind of refuse wood may be charred and turned to account in the cultivation of the soil, or plant culture of any kind; but for smelting and kitchen purposes, &c., of course the kind of wood must be selected according to the purposes required. The spot we choose for charring is always rather sheltered, and if not, we make it so by driving into the soil round at a distance a few stakes, to which we tie some poles, and then stand on their butt ends some furze or other faggots, in order to modify the driving wind. The base of the kiln on which the wood is to be charred we elevate a few inches above the surrounding earth, and make it level and firm, and, as previously directed for other materials, if to be charred in a conical shape, three stakes are driven triangularly into the centre, with a billet placed inside them to withdraw when the kiln is set and ready to be lighted. When setting the kiln, a small quantity of small and easily ignitable wood should be first placed close round the base of the chimney, then a larger quantity, and thus continuing with a larger and longer quantity until the kiln is formed of the desired size, finishing the outside with some small short pieces of wood, chips, &c., so as to fill up all holes and unevenness. All should be fitted and packed close, after which a little straw or mulch should be shaken over thinly to prevent the outside casing from running amongst the wood. The casing should be a few inches of fine earth and ashes; the kiln should be ignited at the top by withdrawing the centre billet, and smoke holes made as previously directed as the kiln progresses. The fire should be smothered when all is charred by closing all air holes, damping the outside a little to prevent the dust from rising, and admitting a little water to the interior from the top, the evaporation of which, thus closely confined, will readily extinguish the fire. James Barnes.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

I daresay everyone of my village readers know what an Idle Corner" is. I fear there are few villages in which ne of these mischievous meeting-points is not to be found; nd, next to that disgrace to a Christian land, the beer-ouse, the Idle Corner is the greatest evil.

In the large village near which I live, there are *two* Idle 'orners, where all the lawless, idle characters get together; nd when young men are out of work, I have seen some ›itering there, who have not yet done evil, but whose love f company have led them to stand and talk where nothing ood could be learned or heard. I have never heard or seen nything but respectful conduct when I have been passing y; but those who live close to the scenes of action say, hat the shocking language, the oaths, the noise, and the isturbance that at times are heard, are sad and disgraceful.

scarcely ever enter the village without seeing at least two r three lads grouped together; and I grieve to say, the abbath does not prevent clusterings together of the same ind, at various times of the day.

These are things that should not be in a Christian land; hey are shameful in a *civilized* country only, how much orse in one that is professedly religious? Even supposing hat nothing worse than idleness is encouraged by them, upposing that the conduct of the loungers was always quiet nd orderly, still the *idling* is in itself a sin, a waste of time, standing "in the way of sinners," an opportunity for atan, a giving way to the slothfulness and evil disposition f the heart, a preparation for any temptation that may ffer itself to the soul. But this mild view of the case is ne that we cannot take; the mischiefs are more terrible, he effects more lamentable; and it is the duty of every arent in the humbler classes to guard against the temptaions of idleness and idle company that are placed in his hildren's way. How many schemes of sin are planned at he Idle Corner we cannot tell; how many thoughts of evil re aroused, how many seeds of future crimes are implanted here, we do not know; but we are *quite sure* that no man, whether young or old, who fears his God, is ever to be seen there; and that the Ethiopian and the leopard may almost as soon change their skin and spots, as those may say and do good, who have been accustomed to say and do evil.

At the head of these idlers, is almost always to be seen a young man, whom I shall call John Watts. He is an object of great interest on one account, because he has lost an arm; but it was lost through an act of disobedience, which will, I hope, be a lesson to some of my youthful readers. When John was a little fellow of twelve or fourteen, he was warned not to go near a huge iron roller, which was at work in a neighbouring park, in fact he was forbidden to approach it. Like many wilful, daring children, he persisted in doing what he was desired not to do, little dreaming of the danger; and mark the consequences! He was caught by the roller, thrown down, and his left arm so dreadfully shattered, that it was obliged to be cut off, and the bone taken *out of the socket.* His agonies were unspeakable; three surgeons were obliged to assist at this distressing operation, and the poor boy, no doubt, *then* bitterly repented of his disobedience. But repentance in his case was not that which is "not to be repented of." We are often very, very sorry for the *effects* of our sins, when we do not mourn for them before God; and I fear John Watts's sorrow was of this kind, because he has not borne the "fruits meet for repentance." Of course he was greatly hindered by his want of an arm, in getting his bread. He could not do as other boys did, in a great many ways; but he was not a steady lad, and by this want of steadiness he suffered much more than by the want of his hand. He was taken into the parish school as teacher, hoping that he might be kept in such profitable employment as might benefit his character, which was not then suspected, at the same time that it gave him weekly support; and for a time he went on very well. But he loved idle company, and he was led to drink, and disgrace himself in the eyes of *man.* How must he have appeared in the sight of a just and holy God?

His first fault was pardoned, in consideration of his youth and inability to earn his bread by labour; and he was again placed in the school, as a trial of his apparent repentance. But the disobedient boy, was the wild rebellious youth. In a very short time his evil habits again prevailed, and he was at once dismissed, to the great regret of those who wished to serve him, and who would have been warm and powerful friends. From that time John has got on as he could. He is a tall, well-grown young man, and it is sad to see so athletic a figure deprived of so invaluable a limb; but it is still more sad to feel that he is misusing the "one talent" the Lord has lent him, and leading others to do the same. I sometimes see him employed in digging ground for a neighbour; but this is seldom the case; and perhaps *some* may suspect me of *romance*, when I mention the fact, but it is true; and may prove to some other crippled youth how much may be done, even under such afflictive circumstances. I have more than once been interested in seeing poor John dig. He strikes the spade powerfully with his foot, and then, by slipping his hand quickly down to the bottom of the handle, he is able to raise the blade of the spade easily with its load of soil. I could scarcely see any difference between his work and that of others.

Yet this young man is very often to be seen at the Idle Corner, when he might have been a "door keeper in the house of his God." He might have been useful in teaching the young, in setting an example, in persuading others to keep at least out of the way of temptation; and his first sin and suffering might have been turned into a blessing. Many would have given him their countenance and support the more zealously, on account of his infirmity; but it is not so, and poor John Watts is wasting precious time disreputably.

I remember once meeting with a beautiful little tract, called "The Idle Corner." I wish it could find its way into every village, and every young man's hand. It would show them the perils among which they stand and talk so unconcernedly; and perhaps be a means, by the blessing of God, of causing them to keep away from such ungodly places. To enter "into the paths of the wicked," and to go "in the way of evil men," is forbidden by the Word of God; and both these commands are disobeyed by those who lounge away their hours at the Idle Corner.

"The eyes of the Lord are in every place, beholding the evil and the good." Let the young and the old, the rich and the poor, remember this. Let us all strive to avoid every place, and "appearance of evil." Let us endeavour to be found only where those resort who love and fear the Lord. Let parents watch over their children, to guard them from haunts of vice and folly; and let the young flee from such temptations to sin, which provokes God to punish them. Let every one take pleasure in saying, "*Our* village has no Idle Corner."

THE YEARLY TRANSACTIONS OF THE HEN-YARD.

A PRACTICAL GUIDE FOR THOSE WHO MAY WISH TO KEEP A FEW FOWLS AND FIND THEM PROFITABLE.

(*Continued from p.* 361.)

MARCH.

March and the few following months may be reckoned the busy season in the hen-yard. The endeavour to rear young chickens without giving them the necessary attention, is but courting the disappointment which so many complain of. Those, therefore, who do not wish to bestow much time and attention upon them, had better content themselves with a small number of broods. A number of broods, which may be found easy to manage in fair weather, should prove difficult to shelter properly if the weather should turn wet or severe. Thus *a small number of large broods* is what you had better aim at, as most profitable, and least troublesome.

We will suppose that you have by this time reduced the stock to a small number of fowls, and provided a few good eggs for hatching. Those hens which have been laying well through the winter will most likely set early. This is most desirable, as the chickens which are hatched in this or the following month (or even earlier, if the season is fine) will be stronger and larger than those of later broods.

Some *hens, wishing to sit,* cluck about the yard for several days, while others will quietly betake themselves to the nest at once. Those which cluck for a long time without taking to the nest, I have never found very good as sitters. Try the steadiness of the hen by leaving her with two or three nest eggs for two days or more, then give her those for hatching. Place them in a clean nest of well-broken straw; but never sit a hen in a nest which has been in use in the hen-house. If she seems fidgetty at first, cover her over, and leave her in the dark for a few hours. Some hens will get angry, and break an egg or two at first, and yet sit very well afterwards.

I believe many broods are spoiled by giving more eggs than the hen can well cover: for a small bird nine are quite enough; eleven or thirteen for a large one. I never had a full brood from thirteen eggs, but as this is a number which is often named, no doubt others have been more successful; with nine and eleven I have had a chick from every egg.

If it can be done conveniently, it is better to sit the hens in a quiet place away from the hen-house; if, however, you are obliged to place any there, provide a piece of lathwork, to fit the top of the nest, and tie it on tight—like a lid; for if the other fowls can get at the sitting hen, they will disturb her, from a perverse desire to lay in that nest in preference to any other; the hen herself, too, may leave her nest before her feeding time, and thus the eggs will be left too long.

Let the *sitting hens* leave their nests once every day; if they do not leave of themselves, as soon as they are uncovered, lift them off. Put them apart from the other fowls, and give them plenty of barley, clean water, and dry dust to roll in. If they can have a run in the yard, at any rate every other day, it will do them good, but they should not mix with the other fowls. Most steady sitters will return to the eggs in ten minutes: they should not be off more than a quarter of an hour. When the time is up, they should be noticed, in case they may require to be humoured or assisted back to the nest. This is especially necessary, if it is not a nest to which they have been accustomed for laying.

If several sitters be put down in one place to feed, care must be taken, that those which may be more timid than the rest get a good supply of food. If a sitting hen is placed alone in some corner, safe from rats, mice, and birds, it is a good plan to place food ready, and allow her to leave the nest whenever she likes; but in this case it will be necessary to observe that she *does* leave the nest and eat her food, as some hens will remain on until they starve. It has generally been found that the freshest eggs hatch the soonest. If they are placed under the hen without becoming cold, I have known it hasten the hatching four-and-twenty hours. It may be convenient to act upon this, in case of being short of eggs the day you set a hen.

I have above recommended the attempt to obtain a small number of large broods, as most economical of time and trouble. A small brood will be almost as expensive, and quite as troublesome, as a large one. The same delicate and frequent feeding, the same care to shelter from cold and wet, and the same trouble in every respect, will preserve a brood of eleven or thirteen chickens, as will be required by one of five or six. Some contrivance in sitting the hens is therefore very advisable. It is a very good plan to get several hens to sit at the same time; this may often be managed by leaving a hen desirous of sitting, to amuse herself with nest eggs for a few days, during which time others may want to sit too. If several hens hatch at the same time, two of them may very well take charge of three broods, or one hen may take two small broods, while more eggs may be given to those hens which are deprived of their chickens.

If you wish to get hens to sit, before they are disposed to do so, warm food will be likely to promote this end, but fowls will not sit until they have been laying some time. I have given toast and porter with occasional success. Pour one quarter of a pint of porter (from the public-house) upon some toast, and give it a few successive mornings among three or four hens. But this must be had recourse to with great caution, lest it interfere with the health of the hens.

WORK IN MARCH.

Feed liberally twice a day, or thrice if they lay well, and the weather is cold.

the sitting hens from the nests every morning, and em corn, water, and dry dust, and see them safe gain.

inue to *store eggs* for hatching.

ANSTER BONN.

(To be continued.)

EARTHING-UP POTATOES.

he 20th of November 1849, I planted a patch of in my garden with Forty-folds. There were fourteen nning from east to west. Directly the plants d above ground, I covered over with earth half the of rows, and continued to do so, by drawing it from s in the usual way, until the stalks became too high t of being covered. The last hoeing was on the 29th l. The remaining half of the rows were not hoed earth between was occasionally stirred and kept free eeds. On the 30th of April all were equally healthy urishing; but on the next night we had a severe he thermometer sunk to 25°; and the consequence at every potato *not earthed up*, was cut to the ground: erwards sprung up again, however, but none were so the haulm, as those which were earthed up and scaped the frost. The disease made its appearance talks in all equally, about the first week in August, n after the potatoes were dug and weighed.

oth cases the tubers were nearly equally free from , but the weight of the seven rows not earthed up, than the remaining seven rows by 29 lbs.: the tubers ewise of smaller size.

although I am ready to admit that had not the frost d, the results would have been different, still I think e protection afforded to the young plant by the g-up system, must always be of service; and I have ound that my crops of potatoes were inferior to those eighbours, either in size or quality, and I have often, e instance recorded, preserved them by the plan of g entirely over the stalk, during the last eight or ars that I have pursued the system.

e excuse the length of this letter; but the subject is nt, and any practical observations on the culture of pular root must be of interest. I shall again, this ve the two plans a fair trial, and shall be happy to u an account of the results.—HENRY W. LIVETT, *Somerset.*

are glad that some one besides ourselves is engaged research. We uniformly find the *unearthed* potatoes oductive in our light, cool-bottomed soil. We are of that the deficiency in Mr. Livett's experiment, arose ie stems of the unearthed being cut down by the We shall be glad to have the report of further ients, and in them a statement not only of the ce in the weights, but of the total weights.—ED. C.

TO CORRESPONDENTS.

e request that no one will write to the departmental writers of TTAGE GARDENER. It gives them unjustifiable trouble and

All communications should be addressed "*To the Editor of age Gardener, 2, Amen Corner, Paternoster Row, London.*"

NTHS (*Laplander*).—As a stranger amongst us, we are glad to you are in the hands of Mr. H., an old friend of ours; and if him so, and request of him, in our name, to put you on the right ien an immediate answer is desirable, we are sure he can tell to proceed. There is not the slightest cause of apprehension safety of your Hyacinths; we have nearly a thousand of them the same condition. Some people destroy their Hyacinths by ; they are as hardy in this country as the daisy. Yours will rise ther yet, and cause as much admiration as your crocuses did. ural light soil to the south of Cheltenham suits without any

ER GARDENS.—"Mr. Editor.—Tell your correspondents who isgressed by sending plans, *after the announcement I made*, all keep all the plans I receive; and if they are sent again, when ne to resume the subject, I shall not promise to give an opinion m."—*D. Beaton.*

R (*An Amateur*).—About thirty feet in length is considered a vinery; in breadth about fourteen feet; the back wall to the be at least nine feet. Give the roof a moderate pitch, not too erwise very bright glass in large frames may cause burning. We should use the British sheet, as does Mr. Rivers; about 16 oz. the square foot. You can grow either *cucumbers* or *pines* in your vinery, or even *figs*, if you desire; but you should get the advice of some practical man near as to the interior arrangements. In planting your vines, put the earliest sorts at the warmest end, finishing with the West's St. Peter's, or the Hambrough, at the coolest end.

SAPONARIA CALABRICA (*Flora Montague*).—Plant it nine inches apart every way. Your bed is too large for so dwarf a plant. We do not know *Saponaria multiflora*, if, indeed, there is such a plant, which we much doubt. *Humeas* look well singly on grass, and they require very rich soil that way. No plants will make a shot-silk-like effect except the two we named, *Old Scarlet variegated* and *Verbena venusta*.

VERBENAS (*Ibid*).—Inglefield Scarlet, Miller's Favourite, and Duchess of Northumberland, are *pink*; Barkerii and Louis Philippe, *dark*; Imperatrice Josephine, *bluish*; Defiance and White Perfection would make a fine bed, but *Emma* would mar the effect of it. We have given all we know about *Mistletoe* more than once; insert the seeds in the rough bark next April. Treat *Lobelia ramosa* like the Saponaria, as you propose, and treat both at first as half-hardy annuals. The Calceolarias in your former letter were smashed; each is as good as the other two.

MATRICARIA (*Ibid*).—Can any of our readers tell Flora Montague the merits and properties of the double Matricaria as a bedder, and how far asunder she ought to plant it, and how long it keeps in flower, &c.?

HONEY FROM TAYLOR'S HIVES (*A Subscriber*).—From a swarm of June, 1849, put into a *Taylor's Amateurs' Bar-hive*, we obtained 28 lbs. of honey, leaving in the stock box 23 lbs. 1850 was a very bad year; should the present be a good one, we expect at least 35 lbs. of honey from the same stock. The honey of Devonshire is said to be fine, but we have never seen finer honey than that collected in the eastern counties.

POINSETTIA PULCHERRIMA (*Y. Z.*).—Your plant required to be more bushy, should be cut down to within six inches of the pot now, be put to rest in a moderately cool house for two months, and kept nearly dry during that time. Then it should be repotted in rich strong compost, made of yellow or brown loam, peat earth, and rotten dung in equal parts; be well drained, and part of the old ball gently removed. Give a gentle watering with water of the same heat as the stove, then place it in a heat of 65° to 70° by day, and 55° by night, till it makes shoots a foot long. You cannot make it bushy, and have fine heads of flowers. There must be no stopping or pruning after it begins to grow. Keep it as near the glass as you can, and give moderate supplies of water at the root, and syringe frequently in the evening. Give plenty of air to prevent it drawing up weakly. If you have a pit heated with linings of dung, it will thrive all the better for being placed in it during the growing season. When the flowers appear, remove it into the stove. After the bloom is over, reduce the water and give it rest till the potting time next year.

FUCHSIAS (*W. B.*).—Your Fuchsias, *Coralina* and *Exoniensis*, have grown already a foot long. You have started them too soon; but you may take off the young tops, and put these in a pot with some sand on the surface; cover them with a glass, and shade from sun, watering only at the first, unless the sand becomes very dry; pot them off when rooted. Give the old plants plenty of air, or they will grow weak, and will not flower finely.

SALVIA PATENS (*Ibid*).—This drops its flowers. It is the nature of the plant to do so; but it will not fail so soon if you give it a rich soil and plenty of water in dry weather. It will not do well in a shady place; in such a situation it would run all into wood, and the flowers would not open at all.

CARNATIONS (*K. C.*).—If grown in pots, they are more easily managed than if planted out in beds, inasmuch as they can be placed in a proper situation, under an awning, for blooming, be more correctly watered, and not so liable to disease. Now is the time to shift them into blooming pots; the size nine inches wide, with a compost of fresh light loam and one-fourth well decomposed manure. By fresh loam is meant the surface of a dry meadow, or old pasture laid up for a year or more and frequently turned. The following dozen pairs are good:—Collcut's *Brutus*, Wilmer's *Conquering Hero*, Bragg's *Duke of Wellington*, Halliday's *Lord Rancliffe*, Martin's *Splendid*, May's *Edgar*, May's *Mercutio*, Cartwright's *Rainbow*, Smith's *Queen Victoria*, Puxley's *Jolly Tar*, Puxley's *Rising Sun*, and Brook's *Flora's Garland*. There is no standard work especially devoted to the Carnation. THE COTTAGE GARDENER contains all you need on their culture.

CYCLAMEN BLOOMS DYING (*F. H.*).—We now can understand why your Cyclamens have not brought their flowers to perfection. Your soil, you say, "was good taken from the garden." Now garden soil may be good to grow cabbages in, but very unfit for such fine rooted plants as Cyclamens. The following is the right compost: fresh loam (that is, decayed pasture turf one or more years old), peat soil got from the moors where the heath grows wild, and decayed leaves one year old, well mixed together with a small portion of white sand. In this they will grow and flower. Again, "you plunged them after blooming in a south border." This was too hot a situation for Alpine plants like these; a west border would have been more suitable. When the leaves decayed, you should have taken the pots up, and laid them on one side to keep them dry and quiet till the end of September; then repotted them in the above compost, and if you had no better situation (a cold frame for instance) placed them in a window facing the east, giving very little water till the leaves began to appear and attain a considerable size, then you might water freely.

INSTRUCTION IN GARDENING (*M. N. E.*).—Many young men are situated like you, and there are so many that have friends in the business,

who make it a point to get their young friends into situations, that it is very difficult for one who has begun the business so late in life as you have to get into a gentleman's garden to learn the business of gardening. No trade requires so many years to pass through as journeyman as that of a gardener. Many men that we know have first served an apprenticeship of seven years in a gentleman's garden, and after that two or three years as foreman, then two or three years in a nursery before they obtained a head gardener's place. Yet they battled through these difficulties, and are now reaping their reward. Patience, perseverance, industry, good steady conduct, with a constant application of the mind to acquire knowledge, are indispensable qualifications to make a good, and, consequently, a successful gardener. From the sample of your handwriting, we feel certain you have some of the right qualities, and advise you to persevere patiently. In the meantime, write to Mr. Appleby, of Pine-Apple-Place Nursery, Edgeware-road, London. We know him to be always ready to help his younger brethren on, and he will, we are sure, do all he can to assist you; but we must say again do not despond, be patient and wait your time. You ask, what terms are usually entered into on obtaining a situation? That question would open a wide field for discussion; but it is no less a fact, whether right or not we will not say now, for young men to pay a premium on entering a garden for instruction.

HOLLOW-TREE ROOT (*C. A. M.*).—If you put good soil in the hollow of the old root, any plant or seed which would grow in the neighbouring soil will also grow there. The sweet-scented *Clematis* would be a good plant, and you might train it up or down. *Jasminum nudiflorum*, which flowers all the winter, would be a good plant; the *Solanum Jasminoides* also. But the difficulty would be to find a plant that would not do that way. In very good soil all the climbers we have so often named will grow rapidly after the first season.

GRAFTING RHODODENDRONS (*T. Lindsay*).—All the finer and scarce kinds of Rhodendron are often grafted and budded on other Rhodendrons that are common and hardy. *R. ponticum* is a good stock. Young plants having the bark still soft are the best for grafting on; but buds may be put on the young branches of any old plant, from June to September, just like budding Roses. Grafts do best in the spring; and side grafting is the best mode. The way to do it is to cut a slice two inches long, with a downward cut, then cut across the bottom of the slice, which will form a notch which should be one-eighth of an inch deep, then prepare the graft so as to fit the place of the slice exactly; tie with a shred of bass-mat, and the work is done; moss or clay to keep off the air must furnish the covering. They will not grow on Laurels. *Gum cistus* is best from seeds or layers in spring, and will grow well in any common dry soil; the roots of your plants were injured. We cannot make out your "Tea plant."

STANDARD ROSES (*Jane*).—The standard Roses you describe were not worth planting at all; it is only lost time to struggle with them; but if you keep them, the only chance of succeeding is to "absolutely prune them," as you remark, and that to the last bud, and immediately. Mulch over the roots, and water them regularly in dry weather.

FLOWER-GARDEN (*J. C. C.*).—Mr. Beaton, to whom you wrote, *contrary to our rules*, does not arrange flower-gardens for "remuneration."

RED-JUICED ORANGE (*J. D. Traumere*).—This is only a variety of the common Orange (*Citrus aurantium*). It is not caused by being grafted upon a Pomegranate stock, for no stock alters the colour of the juices of the produce of the scion grafted upon it; nor does it arise from accidental fertilization of the Orange blossom. It is a permanent variety of the Orange, and may be propagated by grafts and buds.

HARICOT BEANS (——).—These are *not* the Canterbury variety. The best for cooking, when ripe and dry, are the produce of *Brewer's White* (the Hagolet of the French), and the *Deux de la touffe*. The best plan is to sow in pots or boxes at the beginning of April, to be placed in a greenhouse, and the seedlings planted out late in May.

HOT-WATER APPARATUS (*J. W. Gibbs*).—We see no reason for your plan not answering; indeed, heating a tank for bottom-heat, and the air by means of pipes from the same boiler has been long since practised. You may have a *slightly* higher or lower bottom-heat at pleasure, by dividing the tank into three compartments, as you propose; but we see no advantage to be derived from it commensurate with the increased expense of the apparatus. Your flue up the centre of the tank will tend to keep up the bottom-heat in it uniformly throughout.

BUDDING'S MOWING MACHINE (*Evesham*).—Our correspondent has a very extensive lawn, which required two men with the scythe to mow and sweep; but with this machine a man and boy accomplish the same in two half days, as the machine does not act well until the grass has become dry. See what Mr. Beaton says to-day about mossy lawns.

PEGGING-DOWN (*J. B.*).—We thought the directions for using the Snowberry twigs were plain enough; split the twig into four, writhe each separately into the form of a broach or staple, and not together, as you suppose. It is quite impossible for us to be more particular than we are as to the colours of new plants.

POTATOES IN AN ORCHARD (*Rev. M. W.*).—As it entirely depends upon the distance your trees are apart whether you can grow potatoes successfully, we cannot say whether you will probably have a crop. If the potatoes are much overshadowed, certainly not. Never grow a *late* potato anywhere. Many of the early ripenning varieties keep quite as well as the later ripenning, are quite as prolific, are sooner off the ground, and much less liable to disease. Give no manure; the soil of a freshly broken up orchard cannot require it. We always plant with a dibble as fast as a space large enough for a row has been dug, so that the dug ground is not at all trampled upon. You must expect a very small return in a heavy soil, if even slightly shaded. Miss Martineau's letter on *Cow-keeping* is in our 100th number (a double one).

FLOWERS IN A BED-ROOM (*T. P. L.*).—All perfumes in a sleeping-room we consider unhealthy. *Turner's Budding-knife*, we believe, is eighteenpence, sent free by post. Our monthly parts are 13d. when a double number is one of the five they contain. Coloured plates would increase the price far too much.

DISEASED GRAPES (*Patria.*).—The bunches not yet in blossom were quite ulcerated and decayed, evidently showing that the air of the house was kept too hot and too moist in proportion to the temperature to which the roots are exposed; the latter are unable to supply the sap required for the rapid growth. Keep the house cooler and drier, and the roots warmer.

LABURNUM DECAYING (*W. E. W.*).—It is useless to graft a tree that requires its decaying branches to be continually removed. Examine the roots; if they are not extensively decayed also, dig down so as to be able to cut away the deeply-striking roots, and point in some rich soil on the surface to increase the upper development of roots.

POLAND FOWLS (*Incubator*).—You ask a question about the White Top-knots of this breed which we cannot understand; please to write the word more clearly. A short advertisement is five shillings.

HONEY-CANDYING (*W. A. E.*).—You will find a full answer at page 170 of the present volume.

RAISIN WINE (*Ibid*).—Our correspondent will be obliged by a good recipe for making this wine.

ADVERTISEMENTS FOR A GARDENER'S PLACE (*A Lover of Flowers*).—To promote the interests of gardeners, and of others who want their services, we insert these advertisements for *half-a-crown* each.

ECONOMICAL FUEL.—In reply to the query by "a Berkshire correspondent," at page 326, *Taffy* replies, "Any description of clay will answer the purpose, provided it is sufficiently tenacious to hold the small coals well together. The sort of clay he mentions is commonly used near the sea-coast, but inland they use the stiffest clay they can get; in this case, I observe, that they often put a little slacked lime in the mixture. It is by no means necessary that it should be made up into balls as he describes; it is useless trouble, except for fires where appearance is an object. It is better after it has been made up for some time; and if it becomes too dry, it must be moistened again with water; but do not put it on the fire too wet. Bank your fires close down with the mixture, and then make a hole in the top for a draft. It will keep in by this means for twenty-four hours."

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Advertisements.

GENUINE HORTICULTURAL and Agricultural Seeds. JAMES CHARTRES, Seedsman, &c., King William-street, City, London, begs most respectfully to call the attention of purchasers to his establishment, where will be found an extensive stock of Kitchen-Garden, Agricultural, and Flower Seeds, selected with the greatest care, and grown chiefly under his own inspection.

J. C. takes this opportunity to return his best thanks to all who have favoured him with their commands during the past season; and it is with much pleasure he can state that numerous ladies and gentlemen who have visited his establishment, as a proof of their satisfaction, have recommended their friends.

A Descriptive Catalogue may be had on application [illegible] 2, 1851.

NEW and CHOICE FLOWER SEEDS, GERMAN STOCKS, GERMAN ASTERS, &c.—We have selected, out of a large collection of Flower Seeds, twenty of the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with its Botanical and English name—height—time of flowering—colour of the flower—manner of growing—whether erect or trailing, &c., &c.—the time it should be sown, and other valuable hints as to its cultivation. In selecting these twenty varieties we have been careful to exclude all which are shy-bloomers, or have an insignificant appearance; so that the collection will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters, especially, are most superb.

The Twenty Packets are neatly packed up in one paper, and will be sent free by post, to any part of the kingdom, for Five Shillings.

J. C. WHEELER AND SON,

Nurserymen and Seedsmen, by Official Appointment, to the Gloucestershire Agricultural Association.

KINGSHOLM NURSERY, AND 99, NORTHGATE STREET, GLOUCESTER.

WEEKLY CALENDAR.

M W D D	MARCH 27—APRIL 2, 1851.	WEATHER NEAR LONDON IN 1850. Barometer.	Thermo.	Wind.	Rain in In.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
27 Th	Golden Saxifrage flowers.	29.570—29.351	45—34	S.E.	0.14	50 a. 5	22 a. 6	3 59	24	5 36	86
28 F	Eave Swallow seen.	29.399—29.250	45—38	S.E.	—	47	23	4 31	25	5 18	87
29 S	Goslings hatched	29.385—29.343	51—29	E.	0.14	45	25	4 58	26	4 59	88
30 Sun	4TH, OR MIDLENT SUNDAY.	29.433—29.280	52—29	S.W.	0.15	43	27	5 21	27	4 41	89
31 M	Ducks hatched.	29.607—29.560	59—34	S.	0.30	41	28	5 43	28	4 23	90
1 Tu	Nightingale sings.	29.524—29.448	55—40	S.E.	0.12	v	30	sets.	●	4 5	91
2 W	Millepede seen.	29.437—29.410	56—26	S.	0.10	36	32	7 16	1	3 46	92

THAT there is nothing new under the sun, has been acknowledged as a true apothegm, ever since it was uttered by Solomon, and we always find cause for rendering an unexceptional assent to its truth, so far as gardening is concerned, every time we have occasion to refer to the old practical writers upon our art. An example is before us in our pages to-day. Mr. Beaton has given directions for preparing his very beautiful shot-silk-like bed of Verbenas and Geraniums; and it will be found presently that somewhat similar beds were in the gardens of Sir Henry Fanshawe, early three centuries ago. Now we dare wager the value of the best acre of Shrubland Park, against that of a shoe's breadth of Brandon sand, that our able coadjutor never read a page of the *Reliquiæ Wottonianæ*, in which Sir Henry Fanshawe's garden is described; it is, therefore, no plagiary, but one of the usual results of similar good tastes aiming to produce similar improvements in the same art, and Mr. Beaton may say, as the poet said of Shakespere—"I have not stolen from him, but he has robbed me by thinking before I was born, what I have thought since."

SIR HENRY WOTTON was born on the 30th of March, in 1568, at Bocton, or Boughton Hall, in Kent, "on the brow of such a hill," says Isaac Walton, his friend, "as gives the advantage of a large prospect, and of equal pleasure to all beholders." His mother, Elionora Morton, we mention, not only because she was "tutoress unto him during much of his childhood," but because she offers a merry instance that love laughs at wise resolves, as well as at locksmiths. Sir Henry's father, as a widower, replied to his friends' importunity, "that if ever he put on a resolution to re-marry," it should be to one that had no children, no law suits, and no relationship to his family. "But," quoth Sir Isaac Walton, "beauty drest in sadness, is observed to have a charming eloquence, which I mention, because it proved so with Thomas Wotton, for there were in Elionora Morton, a concurrence of all those accidents, against which he had so seriously resolved." Sir Henry was their only son, and we must pass over his pupilage at Winchester and Oxford, until the time, when, in his twenty-second year, "he laid aside his books, and betook himself to the useful library of travel." During the nine years he remained abroad, "he stayed but one year in France, and most of that in Geneva, where he became acquainted with Theodor Beza (then very aged), and with Isaac Causabon, in whose house (if I be rightly informed) Sir Henry Wotton was lodged, and there contracted a most worthy friendship with that man of rare learning and ingenuity. Three of the remaining eight years were spent in Germany, the other five in Italy (the stage on which God appointed he should act a great part of his life), where both in Rome, Venice, and Florence, he became acquainted with the most eminent men for learning, and all manner of arts; as picture, sculpture, chymistry, architecture, and other manual arts, even arts of inferior nature; of all which, he was a most dear lover, and a most excellent judge. He returned out of Italy into England about the thirtieth year of his age, being then noted by many, both for his person and comportment; for indeed he was of a choice shape, tall of stature, and of a most persuasive behaviour, which was so mixed with sweet discourse, and civilities, as gained him much love from all persons with whom he entered into an acquaintance."

Amongst others whose friendship he acquired, he unfortunately included the Earl of Essex, and when that rash nobleman was conveyed to the Tower, which was but the entrance lodge of the scaffold, Sir Henry thought it prudent, "very quickly, and as privately, to glide through Kent to Dover," and to be set upon the French shore within sixteen hours after his departure from London. Sir Henry journied onward to Florence, from whence he privately visited Scotland, to apprize King James of a design of the Jesuits, to poison him, a service which the king subsequently rewarded with the ambassadorship to Venice. In his journey on that employment, he passed through Augusta, in Germany, and being requested to write some sentence in the album of his friend, Dr. Christopher Flecamore, he inscribed this witty definition. "An Ambassador is an honest man sent *to lie* abroad for the good of his country." And no pun was ever nearer working the punster's ruin, for it was quoted against him by his enemies, as a demonstration of his unfitness for his representative office. However, his defence was satisfactory, and he remained at Venice, yet it is very certain that he had learned from long experience that Ambassadors were not relied upon for their veracity in those days, for when asked by a friend, designed for the same employment, to give him some rules by which he might guide himself in his negociations, Sir Henry replied—"Upon all occasions speak the truth; your truth will secure yourself, and it will put your adversaries on the wrong scent, for they will not believe you, and will still hunt counter."

For twenty years Sir Henry remained our representative at the Court of Venice, and during the time successfully sustained the Doge, in his resistance to the aggressions of the Papal power. Many of his encounters with the Roman Catholic advocates are on record, but we must content ourselves with this one. A priest demanded of him, "Where his, the Protestant, religion was to be found before the time of Luther?" to which Sir Henry answered—"My religion was to be found *then*, where yours is not to be found *now*—in the written Word of God."

During his long residence in Italy, Sir Henry acquired an extensive knowledge of the best architecture and gardening of his age, and he turned it to good account, when on his final return to England, he obtained the Provostship of Eton College. Time passed on, and this veteran in varied knowledge saw death rising above the horizon, but it brought to him nothing but hope and kind remembrances of the past, and among these the wish to revisit the school of his opening career. For that purpose he journied to Winchester, and this is his commentary:—

"How useful was that advice of a holy Monk, who persuaded his friend to perform his customary devotions in a constant place, because in that place, we usually meet with those very thoughts which possessed us at our last being there. And I find it thus far, experimentally true; that, at my now being in that school, and seeing that very place where I sat when I was a boy, occasioned me to remember those very thoughts of my youth which then possessed me; sweet thoughts indeed, that promised my growing years numerous pleasures, without mixtures of cares; and those to be enjoyed, when time (which I therefore thought slow paced) had changed my youth into manhood. But, age and experience have taught me, that those were but empty hopes. For I have always found it true, as my Saviour did foretel, 'Sufficient for the day is the evil thereof.'"

Returning to Eton, he died there in the December of 1639, and rests in the College Chapel, according to his own direction, with no other inscription on his tomb than,

Here lies the author of this sentence;
THE ITCH OF DISPUTATION IS THE SCAB OF THE CHURCH.

Truthful words, and worthy of regard, for they who accustom their minds to ecclesiastical controversy, too often, like the Pharisees of old, are careful to give tithe of trivial herbs, whilst they neglect the weightier matters of mercy and faith. Turning, in conclusion, to his *Essay on the Elements of Architecture*, we find that though he remarks concisely on the style of gardening he admired, yet the little he says is just, and evinces that correct taste which dictates, that though the grounds at large, by degrees as we proceed from the mansion, should become irregular and imitations of picturesque nature, yet in the immediate neighbourhood of the house, art should be more manifest. "I must note a certain contrariety between building and gardening, for as fabricks should be regular, gardens should be irregular, or at least cast into a very wild regularity. To exemplify my conceit, I have seen a garden, for the manner perchance incomparable, into which the first access was a high walk like a Terrace, from whence might be taken a general view of the whole plot below, but rather in delightful confusion, than with any plain distinction of the species. From this the beholder descending many steps was afterwards conveyed again by several mountains and valings, to various entertainments of his scent and sight, which I shall not need to describe, for that were poetical, let me only note this, that every one of these diversities, was as if he had been magically transported into a new garden. But though other countries have more benefit of sun than we, and thereby more properly tied to contemplate this delight, yet have I seen in our own, a delicate and diligent curiosity, surely without parellel among foreign nations, namely, in the garden of Sir Henry Fanshawe, at his seat in Ware Park, where I well remember, he did so precisely examine the tinctures and seasons of his flowers, that in their settings, the inwardest of which that were to come up at the same time, should be always a little darker than the outmost, and to serve them for a kind of gentle shadow, like a piece not of nature, but of art. Of figured fountains I will describe a matchless pattern done by the hand of Michæl Angelo de Buonaroti, in the figure of a sturdy woman washing and winding of linen clothes, in which act, she wrings out the water that made the fountain; which was a graceful and natural conceit—the artificer, implying this rule; that all designs of this kind should be proper."

Nor did Sir Henry attend to garden design only, for we find these passages in his letters:—"I have sent," he says, "writing from Venice, in 1622, the choicest Melon seeds of all kinds, which his Majesty doth expect, as I had order both from my Lord Holderness, and from Mr. Secretary Calvert." And Sir Henry "sent withal a very particular instruction in the culture of that plant." He sent also to the Earl of Holderness "a double yellow rose of no ordinary nature, for it flowereth every month (unless change of climate do change the property) from May till almost Christmas." He also introduced one of our Amaranths in 1613.

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures are 54.3°, and 35°, respectively. The greatest heat, 75°, occurred on the 27th of March, 1830, and the lowest cold, 16°, on the 1st of April, in 1838. During the time, 101 days were fine, and on 67 rain fell.

IN answering a correspondent a few weeks since, we stated that there is but one kind of *autumn-bearing Raspberry*; and we so stated because, though we have had many sorts sent to us, and some under the names we shall mention presently, yet, under one system of liberal culture, they all proved to be alike. Mr. Rivers, of the Nurseries, Sawbridgeworth, however, says, that we are in error, and we are ready to find that we are so

when such an authority in fruit-culture comes forward to correct us. In a letter just received, March 16, he says:—

"To convince you that you are wrong, I have sent you the three varieties as follows:—1. *The Double-bearing* (the original sort). 2. *Rogers's Victoria*, of the same habit as No. 1.; *i.e.*, giving only one autumnal crop, but with fruit a little larger. 3. *Large-fruited Monthly*. It is *Framboisier de tous les mois a tres gros fruits* of the French. This, as you will see, is very distinct; it is a robust grower, and gives a succession of fruit till the frost destroys them. Plant them all in your garden in a rich soil, cut them down when planting to within three inches of their roots, and watch them in the autumn."

We have obeyed, and shall obey, the directions to the letter. Our readers shall know the result; and we hope to be able to say there *are* three varieties gifted with such useful times and powers of production.

"Every sentence of the Bible," says Bishop Horsley, "is from God; and every man is interested in the meaning of it." It is a vast storehouse of knowledge; and whether we refer to it for those priceless precepts which can make us wise unto salvation, or for rules to guide us among the things of time; whether we refer to it as a history of the first birth of nations, or for a knowledge of their customs and productions; whether we consult it for information as to the dawn and advance of the arts and sciences, or whether we look to it as an unchangeable archive of our mother-tongue: from each and all of such references, no man shall turn away unsatisfied. Nor is this all; for, as Professor Gaussen observes:—

"Its language is unconstrained, and without reserve: it speaks of every thing, and in every form of words: it is the prototype, it is the inimitable model: it has inspired all that poetry has produced in its most elevated character. Ask Milton, the two Racines, or Young, and Klopstock: they will tell you that its divine strains are by far the most harmonious, commanding, and sublime: it rides upon a cherub, and walks upon the wings of the wind. And yet this book never does violence to facts, nor to the principles of sound natural philosophy. Never in one single sentence will you find it in opposition to the just ideas which science has given us regarding the form of our globe, its magnitude, and its geology; or respecting the void and vast expanse; or the inert and obedient materiality of all the stars; or the planets, their masses, courses, dimensions, and influences; or the suns which people the depths of space, their number, nature and, immensity. In like manner, in speaking of the invisible world, and on the new, unknown, and difficult subject of angels, this book will not exhibit even one of its authors who, in the course of the 1,560 years which have been occupied in producing it, has varied in the character of love, humility, fervour, and purity, which belongs to these mysterious beings."

We were led into this reflection by the one-shilling part of the new and cheap edition of *The Pictorial Bible*, which is now before us,—a work which Dr. Chalmers selected for his daily study, and which every one should have upon his book-shelf. We say every one, because, whilst it is replete with engravings, and with Dr. Kitto's notes, illustrative of the customs, productions, and geography of all nations mentioned in its pages, there is not one theological comment or doctrinal interpretation, so that no man's tenets can be offended.

We opened the pages where occurs this drav the olive—that plant which announced to Noal between God and mankind; and, as if every stance should aggravate the crime, it was am shadows of the same plant that man betrayed the of Peace to his murderers.

We find, from the same pages, that the olive w of the earliest of cultivated plants; for the oil from its berries was poured by Jacob upon the that he set up as a memorial in Bethel (Gen. xxvi That oil was one of the chief sources of wealth Israelites; and when it is said that oil gave t cheerful countenance, it was not only because it to anoint their bodies, but because it was burnt i lamps, entered largely into their food, and its formed portions of their most sacred structures (1 vi. 31). The demand for olive oil, therefore, wa extensive; and it was a valuable product of thei not only as a supply for home consumption, but b it enabled them to carry on an extensive commerc the Tyrians (Ezek. xxvii. 17; 1 Kings v. 11). when a fertile country was described, it was descri a land of olive-trees (Deut. viii. 8); when a punishment was threatened, it was to be a time the fruit of the olive should fail, and when the p worm should destroy the trees in their full vigour xxviii. 40; Amos iv. 9). So, on the other han evidence of a blessing being upon the people is s of as the times when their store of oil increase their children grew around them like olive plants (cxxviii. 3). Of the culture of the olive we ha much information in the sacred pages; but of the and importance of the olive-yards, we have the ev that they had appointed keepers, and other keep their produce (1 Chron. xxvii. 28). The chief f their culture handed down to us is, that, in co

with the vine and other objects of culture, every seventh year was to the olive-tree a year of rest (Exod. xxiii. 11). The berries were not gathered, but beaten off; the gleanings being left "for the stranger, for the fatherless, and for the widow" (Deut. xxiv 20), and the oil was expressed by treading (Micah vi. 15).

GARDENING GOSSIP.

At the meeting of the Society for the Encouragement of Floriculture, the subject of *showing florists' flowers in pots*, at public plant exhibitions, raised an animated discussion. It was at once admitted, that public shows were not the places for the comfort of the shewers, and that the closeness of the single specimens, when packed in a show box, prevented any proper examination by florists who took a real interest in them; and while some condemned the notion of showing Picotees and Carnations on their plants in pots, every one admitted that for effect it was by far the best mode.

It was considered, however, that if they were to be shown in pots, they should be merely removed from the stages of the grower to the place of exhibition, and be judged as plants are judged, by the general appearance and effect, and not by the rules which prevail in stand showing. If the rules which are adopted at Carnation and Picotee shows exclusively, when a split pod, a run petal, or even a crack, condemned a whole stand, the growers would be forced to cut away every bloom that had the smallest blemish, and leave, perhaps, only a solitary flower that would stand the test; thus they would not only destroy the beauty of their plants on their own collection, but would make no effective show for the public; whereas, if they were shown as they were seen on their own stage, three or four very showy blooms which have the best possible effect, might be seen on every pot. Of course, the trouble of carrying pots was objected to unless the prizes were liberal; upon this point, however, there was no discussion; and it was generally conceded that for a public exhibition of plants, a tent full of Carnations and Picotees would be one of the most effective features that could be added to the present extensive displays at Chiswick or the Regent's Park.

Florists' Flowers having been greatly increased of late years, and frequent questions having arisen as to what are entitled to that distinction, the best definition I can give is, they are flowers which have been improved by raising new and better varieties from seed, and each of which varieties can be multiplied by means of cuttings, layers, slips, offsets, grafts, buds, or suckers; thus enabling us to perpetuate by name any variety worthy of being added to our collections. The Tulip, Hyacinth, Pink, Carnation, Picotee, Ranunculus, Anemone, Auricula, and Polyanthus, were for a long period the leading florists' flowers; but the florist soon took under his care the Rose, Geranium, Rhododendron, Azalea, Dahlia, Verbena, Fuchsia, Hollyhock, Chrysanthemum, Camellia Japonica, and many other subjects, which had been most limited to these species, and which now comprise many noble varieties, far surpassing the very best of the pure species. We here talk of hybrids among gentlemen, but florists' flowers would be a better term for all garden varieties, unless a novelty be a complete rule between two distinct families; for the fact of a plant produced by a cross breed bearing seed, fairly shuts it out from any claim to the title of mule or hybrid, if it does not actually prove the families to be the same; at least, such is a very prevalent opinion among florists.

Objections to the present mode of *disfiguring plants by unnatural training*, are becoming very general. Many subjects of fine habit are grown in and on wire-work frames like so many bird-cages, and the flowers dragged through to the surface, or tied down in all directions; others have a frightful number of stakes and wires, so as to destroy altogether the character of the specimen; and we are glad to find that some of the principal judges who are appointed at a few popular shows, have determined to show their abhorence of the system, by awarding prizes to the best grown and most gracefully formed and trained plants produced without supports, or with the fewest contrasts of any kind. Those, therefore, who, in imitation of some of the shewers near London, grow these plants among a mass of wires and stakes, and fastening them with innumerable ties, will have the mortification to find that small, compact, well-grown, and well-bloomed specimens, produced according to their natural habit, will beat all those overgrown plants which, divested of their rigging, as a bystander once applicably called the sticks, wires, and cords that supported some of the monster specimens, would not sustain a single branch in its proper position. For my own part, I think the formality that reigns over a modern collection of show plants, and exhibits specimens of all habits, like so many monster sugar-loaves, or beehives, or balloons, destroys all the charm, and the sooner it meets with a severe check, by the better taste of the judges awarding the prizes to well-grown plants of a fourth of the size, the sooner will our Metropolitan exhibitions reap the advantage of increased popularity, and the more encouragement will be given to a large class of gardeners, who will not condescend to cage plants, as people cage animals, and waste in mechanical contrivances and arrangements that valuable time which should be devoted to the health of the collections.

Torenia Asiatica.—We have seen this plant exhibited many times little better than a weed, beautiful as is the blue velvet-looking flower. The very small proportion the blooms have borne to the size of the plant, has greatly lowered its value as a show plant; and as it has always been trained up some frame or wire-worked design, it has been made worse by the exhibition of as much of the wrong side as of the right side of its foliage. The proper way to grow this plant is to let it hang down all round the pot, which is its natural growth; and in that position it may be shown for months, with hundreds instead of tens of flowers; and all the foliage grows with its best surface outwards.

The *Æschynanthus tribe* has been exhibited trained up wire supports, and its blooms very scarce. Although the plant is not a favourite of mine, I recommend cultivators to suspend the pot, and let all the growth hang down all round it. The flowers, which come at the ends of the long branches, are then shown to the best advantage; I have seen ten or a dozen sorts suspended from

a rod extending from rafter to rafter, the length of the house, with the numerous branches hanging down some two or three feet; others shorter, but all forming pretty objects in or out of bloom; and I will defy a gardener to make it look well as a climber, which it certainly is not.—E. Y.

NEW PLANTS.

THEIR PORTRAITS AND BIOGRAPHIES.

LEMON-SCENTED TOOTHED-TONGUE (*Odontoglossum citrosmum*).—There is a beautiful coloured representation of this very handsome orchid in the last December number of the *Gardeners' Magazine of Botany*, ii. 261. The genus Odontoglossum originated with Humboldt, Bonpland, and Kuth, and the subject of our present biography was named by Dr. Lindley some ten years back. The genus is only a slight remove from *Oncidium*, and the difference is well expressed by the Greek compound *Odontoglossum*, which is in allusion to the tooth-like processes at the base of the labellum, from *odous*, a tooth, and *glossa*, a tongue. These toothings are not met with in Oncidium, and they take various forms in the different species of Odontoglossum or Toothed-tongue. In *citrosmum* there are two of them in the form of fleshy plates at the bottom of the lip, and parallel with the column, or the organ of reproduction. In every other respect, and with common observers, the flowers might easily be taken for those of a handsome Oncidium; and this close resemblance to the Oncids runs through all the species of Toothed-tongue.

Before we pass from this part of the plant, we may remark that the structure of the parts which compose the flowers of orchids is widely at variance from what is usually met with in this part of plants. In orchids there are no central pistils, with a certain number of stamens disposed round them, as in other flowering plants; but in place of them there is a central column on which is borne the fertilising pollen, and the stigma on which the pollen acts before the ovary is fertilised. On the top of this column is placed a solitary anther or pollen pouch, and below this anther there is a moist cavity in the front of the column, which is the true stigma. The length and shape of this fleshy column varies exceedingly in different genera, passing occasionally far beyond the perianth or flower-leaves; it is composed of three stamens consolidated; the two outside ones being imperfectly developed and barren in the great number of the order. In the *Cypripedium* section, of which *Cypripedium* itself is the only genus about which anything certain is known, the two lateral anthers are fertile, and the middle one is barren; hence the first clue to the triandrous, or three-anthera character of all orchids, notwithstanding their being monandrous, or one anthered, by defect; and hence, too, the foundation of a natural disposition of the genera into allied groups. The true nature of the anther having been ascertained, the groups, or sections, are founded chiefly on the different forms which the pollen grains or masses assume; for, like the rest of these curiously constructed flowers, the pollen differs widely from the usual granulous form or powdery matter met with in other plants.

The genus Odontoglossum is peculiarly a South American one, the greater number of species coming from Mexico and Guatemala, and some from the north of the equator, on the east side, and considerably beyond it on the west side of the great Andes chain; and gardeners have found out, in practice, that orchids from these regions do better in a comparatively low dry temperature, after they have ripened a season's growth, and that large portions of fresh air are needful for them during this period; but as soon as they naturally begin to grow afresh, a high moist atmosphere, with less air and absence from the direct rays of the sun, are highly conducive to a full development of all their parts. *Odontoglossum citrosmum* is a native of Guatemala, whence it was introduced about ten years ago by the late Mr. Barker, of Birmingham, through Mr. Ross, his plant collector; but it flowered first near Macclesfield, with Mr. Brocklehurst, to whom Mr. Barker had presented the plant. This plant was exhibited before the London Horticultural Society in the summer of 1842, when it was named by Dr. Lindley. The plant is said not to be difficult to manage, and if that be so, judging from what we know of the great exhibitions round London, it is not nearly cultivated to the extent its charming flowers would lead us to believe. It is difficult to conceive a more handsome orchid. The flower raceme rises at first from the bottom of the pseudo bulbs, and then turns over gracefully to one side, producing a host of lemon-scented flowers of a white and lilac colour along more than half its length. The pseudo-bulbs are large, fleshy, and somewhat flattened, having two leaves on the top, but not so long as the raceme; the whole plant having a green healthy look.

Bulbs, smooth, roundish, flattened; *leaves*, two, strap-shaped, blunt, and like the bulbs deep green; *sepals*, tongue-shaped, wavy, white, tinged with lilac; *lip*, clawed, somewhat kidney-shaped, lilac, two-pimpled, and yellow at the base. —B. J.

THE FRUIT-GARDEN.

STRAWBERRIES.—We ought to have said something on this head a fortnight since, for we hold it good practice to go over all strawberry beds or rows in the first week of March, and afford them a good dressing, for all will need assistance of some kind.

It has been long since shown that autumn trimming is a very unwise procedure, as tending to starve, nay, in many cases to destroy, the crowns; or so to paralyse their energies, that a partial barrenness may be the result. A little consideration will make this manifest to even a young beginner; for, if good gardeners cover their strawberry plants in pots with dry litter in order to protect both root and crown, why not leave all the

decaying leaves, which are a protection as good as litter, until the spring? We again advert to this matter on account of seeing some plots last autumn trimmed so sprucely for the sake of neatness, that there was scarcely anything to be seen but bare crowns left to the tender mercies of the blast.

Doubtless the best practice in strawberry culture is a very frequent renewal of the stock. We dare hardly recommend, without hesitation, what is termed the runner system, that is, depending on runners annually planted for the main crops. Such, in well practised hands and with the necessary appliances, may certainly prove very successful; but for general culture, it is by far the best to be guided by the condition of the plants. Sometimes a plantation will carry an exhausted appearance betimes; and not unfrequently, if the plants should partially miss a crop, and the ground is highly manured, they will grow with an invincible amount of coarseness, which is not unfrequently the precursor of barrenness. The grub, also, sometimes commits sad havoc in a plantation; and under any, or all of these circumstances, it becomes a matter for consideration, whether to break up a plantation after the first, second, or third year. We dare not advise a continuance beyond the *third* crop, for the plants generally carry an exhausted aspect by that time; and, indeed, it is probable that their duration in a state of nature is not often extended beyond that time. The young runners must soon establish themselves, to the prejudice of their progenitors, on the very vegetable remains which performed the office of swaddling clothes for them; and the old stock must, at no very long period, vanish by means of what may be termed vegetable suffocation. The old stocks under culture in our kitchen gardens, being annually freed from superfluous runners, are of course unable to obtain a lengthened existence.

As to spring dressing, our practice is to cut closely down all decayed or decaying foliage in the second week of March. Some of the older stock, such as the *Keen's*, which scarcely form a green leaf, we at once cut *close* over. And now we run the hand through all the crowns, in order to see if any more runners have become wedged in amongst the stocks than we have occasion for. The operator carries an old knife in his hand, and removes all that he deems superfluous. This done, we mulch through them, generally using a half-decayed material from the linings of frames or pits, composed of tree leaves and manure which has generally been reserved in breaking up old beds during the frost, for the express purpose of manuring various culinary crops. This material is chopped to pieces with the spade, and forms an admirable dressing; and those who can procure plenty of soot, will do well to strew a considerable amount over the heap of mulch before applying it; the soot, of course, tumbling down and blending with the manure in the act of filling the barrows or baskets. This we spread between the rows, from two to three inches in thickness, placing it by hand amongst all bare portions of the divisions of the crown or parent stock.

We ought, however, to have observed in another place, that when plantations are two or three years old, some clearing away of runners becomes necessary *between* the rows, and such may be done (of course previous to applying the mulch) by deep hoeing and raking, taking care to extirpate every runner *between* the rows. Thus treated, the plants speedily become covered with new foliage, which can expand freely without hindrance; and about the commencement of the blossoming period, we place straw, *clean new straw*, on each side of every row. This straw is drawn out of the bundle quite straight, and divested of all chaffy material, and is laid in bundles lengthways. Each bundle straightened in the hand thus constitutes a kind of cushion, propping the blossoms several inches above the soil, and, indeed, through the intervention of the straw, our berries do not touch the soil at all. Thus enjoying a free circulation of air, they attain a high amount of flavour, and are at all times gathered with facility and perfectly clean.

Here we must offer a caution. The common mouse, it is well known, is a great pest to the strawberry grower in many places; here particularly so. As soon as our straw is applied, this little rogue is sure to take up his residence on the strawberry plot, no doubt in anticipation of many a luxurious repast, coupled with comfortable lodgings. And, indeed, from the amount of assurance the little rogues suddenly seem invested with, we are not quite sure that these marauders do not get possessed with the idea that the strawing is specially directed to their comforts. Now for twenty-three years we have received an annual visitation of the kind, and we therefore call our traps into requisition the moment the straw is placed. The mischief these animals are capable of occasioning is enormous. Before using traps we have had at least seventy-five per cent. of our fruit rendered worthless, the mice having founded a strong colony in the neighbourhood, devouring the seeds from the surface of the berry as soon as they possessed a kernel; and, indeed, nipping off thousands of berries by the stock, as handily as one of our market-women could do it. The ground, indeed, beneath has been at times covered with the berries in this state.

The next point of good practice is to see that the plantation is thoroughly freed from *weeds*. If not attended to betimes, such fast growers as the groundsel, will spring up and produce seed unperceived amongst the crowns, and the offspring from which is a source of constant annoyance. They should, therefore, be carefully looked over in the early part of April; and finally, more particularly just before the runners extend, which will be about the end of May.

Watering is another great essential in strawberry culture; but with the practice here suggested of careful mulching, much labour will be spared in this respect. Our practice is, providing the weather is dry, to apply one thorough watering when the earliest fruits are swelling off. Now this is no mere sprinkling affair; it is the next thing to irrigation. Our soil, however, is a light, though deep, sandy loam, resting on clean red sand, and constitutes what practical men term a hungry soil. This watering will carry them through nearly a fortnight in the driest of weather; by which time they will require more, if drought continue; and such being the case, we repeat a similar application; after which, we seldom give any more. We are no admirers of the *sprinkling* plan, which with many crops only "flatters to betray."

Enough for the present of ordinary strawberry culture. Turn we now our attention to *the Alpine*, or, as our French neighbours have it, the *quatre saisons*. Many persons raise these from seed, as a tender annual; and such practice, doubtless, produces the finest berries, and possibly the greatest crop, provided the seeds are sown early, and receive the highest of culture. Our immediate business, however, is with the runners, by which mode we have known most excellent crops produced; for as it is now long past the sowing period, those who desire late strawberries must betake themselves to summer culture, for which the present period is admirably suited as to a commencement. The first point is situation; and another, scarcely secondary, is soil.

Now this strawberry belongs to the thin-leaved section, of which, indeed, it—or with, perhaps, more probability, our common wild wood strawberry—forms the type. This section is somewhat liable to the attacks of the red spider. In order to combat this pest successfully, it is necessary that the soil in which they are planted should have a capacity for retaining some moisture during dry

and hot periods, otherwise an inconvenient amount of labour will be called forth in watering them.

Soils somewhat adhesive, or, at least, what gardeners term "sound," will, therefore, be found eligible for the runner system; but they must be well manured, and dug deep. One other important point deserves attention: the beds on which they are cultivated *must* be somewhat elevated. They can be grown well without, we are aware; but as the flavour of such late strawberries is so speedily deteriorated by a rainy autumn, it becomes sound policy so to place them, as that they may at least soon become dry or mellowed again after such inclement periods. Beds, therefore, raised six inches above the ground level, and running north and south, will be found admirably adapted. Such beds we would have about twenty inches in width, and possessing an alley of some sixteen inches. The line may be stretched down the centre, and plants placed eight inches apart down this line; first planting a couple of inches on one side the line, and then as much on the other, alternately. This will, of course, constitute a double row, and they will spread right and left, and by the beginning of August will occupy the whole bed. The young runners will want watering at times, and must be kept clear of weeds; if they should make very rapid progress and commence blossoming *too early*, the best way is to pluck off all blossom up to the middle of July; thenceforward the remainder will be required for an autumn supply.

R. ERRINGTON.

THE FLOWER-GARDEN.

CUTTINGS.—It is one consolation for those who have not materials for beginning to propagate by cuttings till after the middle of March, to know, that from this time, to the end of April, is the best in the whole year for rooting cuttings of the great majority of flower plants; though not the best time, it is true, for convenience, where a large stock of plants is needed. A cutting will root now with one-third less heat, or excitement, than would be necessary a month ago; and as soon as rooted, potted off, and established in the new pot, the season is so far advanced that little more nursing is required. The young stock goes at once into close cold pits, or somewhere equally good, for *hardening off*. Now this hardening is not at all so easily effected with plants of the same kinds that were rooted last February, because they must have been so much longer in heat, or very much confined for fear of bad weather. If gardeners could so manage that all their spring cuttings might be made in one day, I am sure nine-tenths of them would be satisfied to begin during the last week in March. *Verbenas*, *Heliotropes*, *American Groundsel*, *Anagallises*, the small blue and white *Lobelias*, the double *Nasturtions*, and such like, will root in four or five days at this season, if the cutting pots are plunged in a bottom heat from 70° to 80°, say in a close hot-bed, such as one would like for a cucumber bed; but let us say that a week is over after the cuttings are made before they can be rooted, and another week is spent in getting them established after potting, then, by the end of the third week, they are in a cool pit. Here, then, is sufficient encouragement for young beginners to try their hands at propagation, who may now be thinking that the season is too far gone for them to set about this new work, and equally so for those who are only half through with their cuttings, and are afraid that the season is too far gone for them to make up their number. As to the work itself, small pots are far preferable for cuttings of all sorts; and if there is a couple of inches of good rooting compost at the top, the rest of the pot may be filled with any common soil that is open enough to let off the water freely, as cuttings, like seedlings, should not remain longer than two or three days in the pot after they have made roots.

Equal quantities of sifted leaf-mould, sifted peat, or light loam and sharp sand, will make as good a compost as any one can wish for the cuttings to rot in, or for the roots to get into as soon as they are made in a thin layer of clean sand at the top. No matter how common a plant we propagate, the work is always more sure and more tidy if one-fourth of an inch of clean sand be on the top, and the pot is quite full to the rim, which is another great point, because you cannot then over-water it; but without the sand at top the cutting pots must not be quite full, as, if the sandy compost recommended gets once dry, it is not easily watered in a full pot, the water would run off to the side for some time before the surface got damp enough to let it pass down. It is not so with sand, if it is ever so dry the least sprinkling of water will pass through it at once.

When you first begin it is best to water the pots before the cuttings are planted, to press down the surface a little after the watering, but not so much as to make the sand quite firm, and then to put in only one row of cuttings in a pot, and just round the sides. But gardeners are not particular about all this; very often they fill a pot as close as the cuttings can stand together, and, perhaps, not even water the sand till all the cuttings are in; that, however, is no rule for beginners. If a cutting is an inch out of the sand, and less than half an inch deep in it, that is as good a way as any. Long cuttings are not so sure.

There is no good rule for knowing when a cutting has made roots, the nearest guess is when the cutting begins to lengthen, but a great deal depends on the heat of the bed. If it is too hot, many cuttings will lengthen or look as if they were growing, when it is only the great heat which forces them into growth before roots are formed; and, on the other hand, if the bottom heat is much higher than that of the top, roots may be formed long before new leaves come on. Of the two excesses this last is the best and safest.

Again, suppose one has only three or four cuttings now of a kind of which a score of plants will be required next May, there is no reason to fear coming short of the number; the only difference is that they will be later. In this case, the cutting pot for the small number must be all filled with the best compost, because the few cuttings must not be potted when they make roots like those of which there are enough at first. Scarce cuttings must be kept at work as long as the necessary number run short, and as soon as their tops are long enough they are made into a fresh lot of cuttings, thus doubling the number. By giving the rooted ones a little water every day, or every other day, according to the weather, they will grow away fast a second time, and each will produce two or three tops this time. As soon as these are little more than an inch long they are fit for the second crop, and so on for successive crops until you have enough. This is just the way they manage in the nurseries where they require so many plants; but we must remember that plants from such delicate growths require to be very carefully nursed for the first fortnight after they are removed from the hot-bed. They are so tender as to require the same management as delicate seedlings.

The very best *compost* I know of to plant newly-struck cuttings in, is this: two parts, or two-thirds leaf-mould, not sifted, but rubbed between the hands; and one part, or one-third sand, and it should not be pressed firm in the pot.

Of every kind that is potted after the middle of April, I would put two plants in a pot opposite each other, because at planting out time, late struck plants being not so strong as autumn or early spring cuttings, I would allow two plants for one. Indeed, it is the best

plan to have two plants in one pot, or ball, of all the kinds that may be trained flat on the beds as soon as they are planted. Then, at planting time, I would split the ball a little on the top between the two plants, and let each lean a little to one side; a much safer way than planting a whole ball, which might get so dry in a few days that no water could get into it. I never allow a whole ball to be planted, under any circumstances, for that very reason; if there is only one plant in the middle, more than one-half the ball is shook off, but the great bulk of our stock here is planted with only as much soil as will hang to the roots, because we turn them out into cold beds in April, into leaf-mould and sand, as fast as the weather will allow us to trust them under mats, or some temporary coverings. Here they stand full in the sun and get very little water, so that the change to the flower-beds is hardly felt; but then every plant is watered as soon as it is put into the ground, and when a bed is finished a rose pot is applied all over, and next morning the plants look more fresh and bulky than they did in the reserve beds.

This is the right time to plant out old plants of *Verbena venosa*, for the shot-silk-like bed. They are hardy enough to stand the winter; but they must not be left for another season without changing and making the plants smaller, by dividing the roots. If they were left undisturbed they would grow this next summer so strong, as to master the variegated geraniums, and render the whole bed next to useless. It is upon the nice balancing of the two plants together that the effect is brought out, and small plants of both are better than large ones, if they are planted thick enough. The way we do here, is to take up the old plants before the winter, cut off the tops, and plant the roots under some spreading tree in the shrubbery, and if hard frost sets in we throw some boughs over them. The bed is then partly renewed with fresh compost, dug roughly, and about the end of March, when the weather is dry, it is forked deeply to mix it well. The old plants are taken up, and the strongest of the underground runners are cut into pieces, from four to six inches long, and the pieces are planted in rows, a foot apart every way, and ten inches from the outside of the bed. They are covered two inches thick with soil, and, as each patch is planted, a little stick is stuck down at the place, to guide the planter. When the geraniums are put in next May, one row is planted round the edge of the bed, and then along between the sticks; when there are plenty of pieces on hand, three or four of them may be put together to guard against failures. When the Geraniums are put in a foot apart each way the bed looks nearly thickly enough planted, without the verbenas; indeed, if the geraniums touched each other all over the bed, it would not be too thick. The verbena shoots will be able to push up among the branches of the geraniums; and if these shoots become in the least crowded, some of them must be cut back, or pulled up altogether. After the middle of July, the beds must, or should, be looked over regularly once a week, to see that no part is too thick or too thin of shoots; that none are longer than the rest; in short, the whole should appear like a new-made bouquet, for the whole season. There are no other two plants in England that will produce the same effect; and I hope I have now explained all that is necessary to know how to make a rich ornament of this bed, about which I have had more inquiries than any one could believe.

Companion to the Calendar.—I have told lately how much amused I was with a threatening, that if we did not tell all that was written in the former volumes to a new subscriber, some of us would be "sent to Coventry;" and all of us have acknowledged that much of our contributions is suggested by the letters of correspondents. Now, without having any objections to go down to Coventry, or to Bath either, I should very much like to please new subscribers, if it were only on account of their having got into good company, and a Companion to the Calendar is the best form that I can think of for such a purpose. Then, to carry it out, I would suggest that each of us should give an article or two every month, in explanation of the Calendar: saying why such and such things ought to be done so and so, and how to set about it. In this way all our new subscribers will come in for the cream of what has been already said in former volumes. At any rate, if each of us had a monthly article to explain the calendar for that month more at large, we should be killing two birds with one shot, if not three. New beginners, of whom a rising crop is ripe annually, would be better instructed; old ones would be reminded of the principal things to be done during the month, as, at present, by the calendars, with this addition, that the reasons for particular ways would be added, and the writers would escape, so far, from the artillery of correspondents. We need not, however, tie ourselves down to any particular rule, but each, in his own way, write what he thinks most needful for a class of readers. Next week I shall endeavour to put this idea into form; and, from my own personal knowledge of the anxiety of my brother writers to do what is most likely to advance the usefulness and credit of The Cottage Gardener, I am quite sure they will fall in with my views.

Meantime, to make up for this digression, I propose *an entirely new flower-bed* for next summer. I made some trial experiments last year, from which I believe the bed will answer perfectly. It will be a neutral bed, made up of equal quantities of the *Zauchsneria Californica* and *Cuphea strigilosa;* the former quite hardy, and the Cuphea all but hardy, so that it is easy to find plants for this arrangement. Take old or young plants of both (but not old plants of one, and young ones of the other), and plant them in rows—one of Cupheas, and the next of Zauchsnerias, and so on, all over the bed; their leaves will relieve each other. Their mode of growth and flowering is the same, and the red colour of the Californian will blend well with that of the Cupheas.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

General management of greenhouses—(*Continued*).

Ventilation.—I have already alluded to the temperature, and ventilation and firing are the means we possess for regulating it. Means should be secured for a thorough circulation of air from the sashes in front, and the highest point in the roof, as there the heat will generally be the greatest. In cold weather in winter, unless there are means for heating the air before it enters, the little given should be at the top of the house, as thus the cold dry air would be heated and absorb the moisture before reaching the bulk of the plants. When the air is very dry, and the weather very cold, the less air that is given the better. In such circumstances, the heating medium should be cool before the sun strikes upon the house, and then the sun-heat will raise the house the less; and 10° or 20°, for a short time, from sun-heat, is a very different affair from having that increase from artificial means. The prudent gardener must, therefore, be so far a weather prophet, as to notice the signs of what is coming. The most knowing may be outwitted at times, such as when a bright day succeeds a very cold dull morning; but even then, in very cold weather, when the house temperature rises rapidly from the fire and sun-heat combined, it is safer to shade a little, in preference to admitting a great body of air. For greenhouse plants, generally, in favourable weather, too much air cannot be given, night or day,

from the middle of May to the middle of September. For two months preceding May, and subsequent to September, air should be given early in the morning, if it should be withdrawn or reduced soon afterwards, or early in the afternoon. In winter, unless the air is very mild, it will be time enough to give air by ten o'clock, and shut up between two and three. When the weather is very severe, one hour, or even less, in the middle of the day, must be sufficient. In dull, close weather, air should be given, though a brisk fire should be put on during the day, on purpose. When, however, the greenhouse is changed into a vinery, a place for growing tender annuals, &c., the forwarding of the growth of Camellias, Epacris, Azaleas, &c., then the temperature in spring and summer must be higher, and the atmosphere closer and moister. By means of divisions, you may have almost as many temperatures and atmospheres in one house as you please, by the regulating the ventilation of the different compartments. Slight wooden moveable divisions we find extremely useful in pots, as we can give a peculiar treatment to one or any number of lights at pleasure.

Firing.—Every shovelful of coal costs money and labour. The heat that comes from the sun brings light in its train, and costs us nothing. The heat from the furnace merely extends vegetable tissues, that from the sun expands and concentrates. No stoker should visit his furnace without knowing the temperature of his house, the temperature of the external atmosphere, the direction of the wind, the changes that have taken place in a certain number of hours, and thence calculate what will be the most likely to happen. The minimum temperature should never be exceeded by fire-heat during the night. More than sufficient is not only *waste*, the plants are *drawn* and *dried*, while less advantage can be taken of the glorious light and heat which comes from the sun. For dispersing damps, &c., use a brisk little fire during the day and allow it to go out. In very dull, close weather in winter, such a fire often, if even for an hour, would be useful; not for heat, but for enabling us to give more air, and causing a rapid circulation among the plants.

Watering.—This has frequently been referred to. The rule is, water so as to reach every fibre of the plant's roots, and then wait until a similar repetition is necessary. A plant may want watering twice a day in summer, and, perhaps, only twice a month in dull weather in winter. From the end of September to the middle of May, let the temperature of the water used be from 5° to 10° higher than the minimum temperature of the house. From the periods mentioned, making of course due allowance for peculiar weather, watering should be performed in the morning; in cold weather not too early. Thus the stimulus of sun-heat, diminished though it be, meets the plants when they have received their refresher; the extra moisture is parted with before the evening comes, and there is not that rapid cooling of the soil by evaporation during the night. During summer we reverse the time of watering, and perform the operation in the afternoon and evening. Anything that tends to cool the soil and the plant is then refreshing By watering in a bright morning, the moisture is exhaled rapidly from the soil, as well as through the foliage of the plant, which does not, in consequence, receive the full benefit of the watering, and, therefore, soon requires a fresh supply. In the evening the evaporating tendencies are approaching the minimum; the plant has full time to absorb and refresh itself, and thus is abler to stand the brunt of the following day.

Manure Watering.—This should be applied often, but weak and clear; a little quicklime added will effect the clearing, at the expense of driving off a portion of the ammonia. It is applicable in almost any case where luxuriance of plant is the chief object; where size of bloom and compact, rather than slender growth, are the desideratum, it should not be applied until the flower-buds appear.

Syringing.—This is a most valuable mode of applying water, as it promotes cleanliness, and is as necessary for removing dust and incrustations from the foliage as soap and water are for cleaning our own skins. In winter it should be done at mid-day, when the sun shines; in spring and autumn, in the morning; in summer, chiefly in the evening, though at that season we frequently give them a dash several times a day.

Pruning.—This is generally done when the plant has finished flowering—when we wish it to start into fresh growth. Of course there are exceptions; without these exceptions the nature of a plant and the mode of its growth must be the basis for a system of pruning. For instance, we cut down the flowering shoots of an Epacris and a Pelargonium; but we act very differently both before and after in the two cases. The Epacris is hard-wooded, and if tolerably ripened it requires no preparation. The long branches of most kinds are cut in at once, and the plant is then transferred to a closer and warmer atmosphere to encourage the formation of new shoots; a cold pit, kept close, is the thing; some people, with great success, keep them a couple of months in a plant stove. Of course they are duly hardened, and the wood ripened by autumn. On the other hand, the stems of the Geranium are soft and spongy; if a very valuable kind, this will have been increased by shading, to preserve the colour of the flower. The plant altogether is at a minimum as respects its possession of organisable material; while, for the sake of the old plant to be kept, and the cuttings for seed from its stems, it is desirable it should be at the maximum. The plants are, therefore, exposed fully to the sun; not a drop more water is given than just to keep the leaves from flagging; and the stems, instead of being soft and green, become hard and brown, by parting with their watery evaporations, and assimilating fresh solid material. Many other close-headed plants, such as the Azalea, merely require, in general, the stopping of a few of the strongest shoots.

R. Fish.

(To be continued.)

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

Calliandra Tweediei (Mr. Tweedie's); Brazil.—We lately paid a visit to the Royal Gardens at Kew. In the large conservatory we observed two plants in flower of this shrub, and was much pleased with their beautiful Acacia-like bright green foliage, with here and there a head of their rich scarlet-crimson, silk-tassel-like blooms, nestling, at it were, amongst the beautiful leaves. The plants were upwards of six feet high, and were tolerably handsome formed bushes.

This plant belongs to a small genus of Leguminous plants (Fabaceæ). There are two other species; namely, *C. Harrissii*, with rose-coloured flowers, and *C. pulcherrima* with bright scarlet flowers. They are all handsome stove shrubs, but require to be of some age and size before they flower.

Soil.—Sandy fibrous peat, two parts; turfy loam, one part; leaf-mould, one part; with as much sand as will give it a sandy character. This will form a light open compost in which they will grow and flower well.

Propagation. By Cuttings.—The young tops, when they become rather woody, make the cuttings that are the most certain to strike, though they will take a longer time to root than the younger wood. An experienced careful propagator would prefer the youngest shoots because they root the quickest; but to a less experienced amateur, the half-ripened wood is to be preferred, as no

being so liable to damp off. And this rule applies to a great number of similar woody stove plants. If a cultivator has not a good propagating-house, with all its conveniences of heat, moisture, shades, bell and hand-glasses, and plenty of time to attend to all the regular shading, watering, wiping of glasses, &c., he had better, generally, choose his cuttings of such a state of wood-ripeness as to ensure a strike, though he has to wait a few weeks longer before his cuttings put forth roots. Generally, the *best time for planting cuttings* is in the early part of the year, in order that they may be rooted in time to receive at least two shifts from the cutting-pot before the growing season is over. This gives them time to become well-established woody plants before winter, with its dark damp days, sets in, which, if it found them in a soft green state, might destroy them. Prepare, then, the cutting-pots and bell-glasses, compost and sand, as near this time of the year as circumstances will admit. The compost we have described this week will suit most kinds of cuttings to root into; but to prevent the decomposing power in the compost from acting upon the young and tender cutting, an inch deep of pure white sand is indispensable. Proceed, then, in the way we have often described, and still press upon the attention of those desirous to increase their plants, that is, first drain the cutting-pot in a more careful manner than is done in merely repotting established plants. Place first a large piece of broken potsherd over the hole at the bottom of the pot, prop it up on one side with a very thin piece of blue slate, or thin potsherd, then place an inch, or rather less, of potsherds upon the large one, and upon them about half an inch of still smaller broken potsherds; upon them place a thin layers of moss or of the fibrous siftings of peat, then one to prevent the finer particles of the compost being washed down by frequent waterings amongst the drainage, which would soon choke up the drainage, cause the soil to become sour, and bring disease and death amongst the cuttings, even after they had put forth roots. This most important operation (in the art of striking cuttings) being well and duly performed, then fill in the compost to within one inch of the top, shake it gently down, and smooth the surface with a circular piece of wood. Then place upon it an inch of fine pure silver sand, filling the pot quite level with the rim, give a gentle watering, which will give a smoothness and firmness to the sand, rendering it in a fit state to receive and hold fast the cuttings. It may then stand on one side till the cuttings are taken off and prepared. If a bell-glass is used, the pot should be of such a size as to allow the glass to rest upon the sand just within the rim of the pot, and should now be fitted to it, pressing it down so as to leave a mark which will serve as a guide within which to put the cuttings.

Preparing the Cuttings.—In the case of the *Calliandras*, take them off, bearing in mind the above remarks on the age of the wood; above all things do not make them too large. It may be laid down as a rule almost without exception, that *the smaller the cutting, the more surely and quickly it will root;* and more especially this rule applies to such small twiggy shoots as those of *Calliandra;* coarser growing, such as *Clerodendrums;* or more soft-wooded plants, such as *Gloxinias*, may have their cuttings made a little larger; but all others should be made as small as possible. One inch, or one and a half inch, with a very few leaves at the top will be quite large enough. Make as many cuttings ready at once as will fill one pot, put them in pretty close to and within the mark made by the rim of the bell-glass, incline the leaves inwards so that they may not touch the glass when it is put on, that the moisture which condenses on the inside of the glass may not wet the leaves, and so cause them prematurely to decay; put the cuttings in with a small smooth stick, one made of ivory is the best; press the sand to the bottom of each cutting, and do not allow the cuttings to be very close to each other; for if one happens to decay suddenly it might infect its neighbours, and thus cause destruction to the whole crop. Fill up the holes with a little dry sand, give then a gentle watering, and allow them to become a little dry before the glass is finally fixed upon them. If you have the convenience of a bark-pit, however small, within the propagating-house, plunge the cuttings in it quite up to the rim of the pot, smoothing the bark close to it by patting it down with a small piece of wood. The cuttings are now in the best possible state and condition. The care necessary will be to shade them from bright sunshine, or even strong light, for a few days, or, perhaps, weeks will be necessary, till they root. They must be examined daily, and all decaying leaves or dying cuttings removed as soon as they occur. The glasses should be wiped quite dry at least every other day; should the sand become dry, it must have a supply of water; but the glasses must then be kept off for an hour to allow the leaves and the surface of the sand to become moderately dry. Early in the morning is the best time for this watering to be done. With this minute and daily care it may be expected the cuttings will most of them grow. When they begin to show signs of growth, the glasses should be left off for two hours every morning, and if they appear to bear this exposure well, they should be examined to see if roots are formed. This may be performed either by gently raising one of the most promising, or by lifting the pot out of the bark, turning it carefully upside down, giving it a gentle blow on the edge of the potting-bench, and then catching the ball in the hand so as not to break it. If there appear plenty of roots they may be divided at once, and potted singly into 2½-inch pots, and placed under hand-glasses till new roots are formed; shading and watering regularly. After this gradually inure them to bear the full air and light, and then remove them into the stove, placing them on a shelf near to the glass.

Summer Culture.—From April to September inclusive the heat should be by day 65° to 75°; by night 55° to 60°. Air must be given to keep the temperature to within a few degrees of these points.

Pot in March, and if the plants are young, again in June. Young plants place in a cold pit or frame from July to the end of August, or the middle of September, if the season is fine. We have found stove plants, at least all that will bear it, to be greatly benefited by being planted out in a sheltered sunny border during summer, taking them up and potting early in September. One beautiful stove plant, the *Hindsia longiflora*, and the variety *alba*, we never could get to form dwarf handsome bushes by any other means than planting out; and it is a practice we strongly recommend for a number of otherwise difficult-to-manage stove plants.

Winter Culture.—Having got summer over, and a good growth upon the plant, another less congenial season approaches; but if rightly managed during its progress it will be found equally as beneficial to stove plants as it is to our hardy shrubs out of doors. This is the season when we must induce our hothouse plants to go to rest. *Calliandras*, especially, require it. If they lose the greater part of their leaves, so much the better; they will then require a careful pruning. All coarse strong shoots should be shortened in, and very small twiggy ones cut out entirely. This will strengthen the remainder, and it is from the shoots made towards spring that the flowers are produced. As we mentioned above, they are now, in March, in flower at Kew, and the flower-buds appear amongst and along with the young shoots; the pruning, then, ought to be performed in the early part of the winter; the month of December, we say, is the best month to do it, because then the plants are, or ought to be, in a dormant state. During this season

but little water must be given, and a lower temperature —the maximum 60°, the minimum 50°. T. APPLEBY.

FLORISTS' FLOWERS.

ALL this class of plants will now require constant attention. *Auriculas* and *Polyanthuses* will now be showing bloom, and should have plenty of water at the roots, and abundance of air. They will not need shading as yet. *Carnations* and *Picotees* require to be finished potting into their blooming-pots, and sheltered from heavy rains, sleet, cold cutting winds, and frosts. *Chrysanthemums*, propagate by cuttings. *Dahlias*, continue to propagate. Cuttings that are rooted should be potted, and placed in a warm sheltered frame to grow stout and strong. *Hyacinths*, in pots for exhibition, should be in a forward state; give plenty of air, and place sticks to support the bloom; water freely, and every third time with liquid manure. *Pansies*, attend to by top-dressing both the beds and pots with old decayed manure; shelter from severe cutting winds and heavy rains. *Pinks*, top-dress also. *Ranunculuses*, shelter; tread firmly the soil about them if not already done. *Tulips* must still be carefully protected from heavy rains, late frosts, and sleet. T. APPLEBY.

THE KITCHEN-GARDEN.

ROUTINE WORK.—Persevere with general cropping. If there are any cabbage-plants amongst the crop to be found starting into bloom, clear them at once away, and make up the deficiency with other plants; make also another small planting, and sow for *coleworts*. *Cauliflowers*, growing under hand-glasses, should be encouraged by the occasional application of tepid liquid manure; the glasses should be raised in sufficient time to prevent the plants ftom getting, in the least degree, cramped. Plant out in succession, and make another sowing. Where ground is infested with the maggot, it is an excellent preventive, previous to planting, to dip the roots into a mixture of soap-suds and chimney-soot. Sow *carrots* in full crop, also *red* and *white beet*, *borage*, and *basil*; as well as *borecole*, *Egyptian*, and other *kales*, *Brussels sprouts* and *savoys*. Sow the *Purple Cape*, *White Cape*, *Grange's White*, and *Walcheren brocolies*; and see that enough of *capsicums*, *chillies*, *tomatoes*, &c., are sown and pricked off. Make, too, a sowing of *Ridge cucumbers*, *horse-radish*, and *sea-kale*. *Jerusalem artichoke* planting should be finished, and a beginning made in thinning the small suckers from the strong *Globe artichokes*. A planting of strong suckers may also now be made.

Parsley, both *curled* and *Hamburg*, should be sown in full crops, also *salsafy* and *scorzonera*. Sow the *New Zealand spinach* in heat; prick off in due time a few plants, and get them strong by shifting into larger pots, so that they may be in good condition by May Day for turning out under hand-glasses or a little bottom heat. Sow *celery* in full crop on a gentle bottom heat, and prick a sufficiency of early-sown plants. Sow *chervil* a little and often; save for seed a portion of the most curled which has stood the winter. Thin out the crowns of the *sea-kale* which has been forced; apply liquid manure to the early out-of-doors *rhubarb*. If *onions* have not been already sown, they should be attended to forthwith. *Early potatoes*, under glasses, which have nearly made their growth, should be kept pretty dry, neither applying water or allowing any quantity of rain to fall on them. Apply liquid manure to old *mushroom-beds*; keep cold draughts from those in bearing, and place the summer-bed in a shady situation. JAMES BARNES.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING FOR APRIL.

"THE hand of the diligent maketh rich"—a fact, if notorious in the days of Solomon, how much more so in these times, when, from the severity of competition in this densely peopled island, almost all real advances in position are accomplished by skill, or labour, or both.

The labourer is no exception to this rule; for labour competes with labour, as skill with skill; and although a lounging and dilatory person may manage to get into the lowest grade of employment for a great portion of the year, at a miserable pittance, yet how different the condition of such a man when compared to an industrious and careful cottager or allottee who thoroughly cultivates his plot of ground. Well may philanthropy point to an extension of the allotment system as a radical cure for no small portion of the evils,—social, moral, and industrial,—with which this kingdom is constantly afflicted or threatened; a kingdom, too, presenting the strange anomaly of the very opposite extremes of riches and poverty.

To excite the allotment holder to increased diligence, we would simply tax his memory for a moment by asking him to recollect how many of the truly industrious and obliging amongst his compeers he ever met with begging his bread, or driven into the lowest class of unprofitable drudgery? "I have been young, and now am old; yet never saw I the righteous forsaken, or his seed begging bread." Thus spake the Psalmist in his day; and by such, coupled with the constant and unvarying phase of the question, as presented in these, and indeed all other, times, it is sufficiently manifest that our great Creator has indissolubly coupled industry and propriety of conduct with success, and idleness and dissoluteness—twin brothers—with want and woe.

Now, then, whilst the spring is young, and so much may be in very truth effected by perseverance, let us exhort all cottiers, or others who may look over these papers, to buckle on their armour, and to take the field in good earnest; we are assured that the majority will know of themselves that such labours will be amply repaid.

"Take time by the forelock," is an old and somewhat trite saying; and since the days "O' lang syne," the month of April has been accounted the busiest month in the whole year, to the farmer and the gardener.

The first question we would ask every small gardener or farmer is—Have you *thoroughly decided* on a general policy or scheme of cropping? If not, you must do so forthwith. A good scheme of cropping is something like a geographical puzzle, one part removed or altered will derange all the rest. Economy of both manure and labour are hitched on this very point. Indecision will spoil a well-laid plot; and as our clever fellow-workman, Mr. Barnes, has observed, will throw things into a "pretty muddle." We are not of those who revere cut and dry rules, where liberty of action can be guided by a good common-sense view of affairs.

Two allotment-men, holding plots in common, are not obliged to crop by an universal, and, as it were, stereotyped system. Every man should consider his wants: those who have large families, have to cater, in the first place, for many a craving stomach, the youthful possessors of which not unfrequently importune the parent after the manner of young birds in the nest. Now, although we would fain induce cottiers, who are lucky enough to hold a nice garden, and who have few or no children, to try and make some *cash* out of their plots, we are willing to concede that the craving stomachs of the youngsters have a prior claim. Nevertheless, if any cottager can find out a scheme whereby

to bring in some hard dollars, as a Yankee would say, by a marketing system, he is decidly in a position to act as commissary-general of the forces under his command.

"Stock," too, must be taken into account; that is to say, a cow or a pig; for we have no occasion to ascend to pluralities in this matter. Where the plot is small, and the holder has, or will attempt to keep, a cow, of course he will keep a pig or two; for it is, indeed, this circumstance which renders the pigs much more profitable. In cases of this kind, roots, such as the mangold and swede, become of eminent service, and every nerve must be strained to produce them. Without pasturage this becomes a strange uphill procedure, but if the holder has the good luck to possess an acre or two of ground, we would always, if possible, encourage a small portion of good pasturage, inasmuch as the cow *must*, at times, have out-door exercise; and whatever may be the benefits of stall-feeding, it is certain that a run in a pasture, even for a couple of hours, is at least conducive to the health of the beast. Such, however, forms the exception to the class for whom our labours are intended, and we must, therefore, dismiss this portion of the subject with a glance.

To return, then, to our point. We will suppose that our small holder has thoroughly digested such matter, and proceed to cultural processes peculiar to the season.

Preparation of Root Ground.—First of all potatoes. We are decidedly of opinion, as heretofore observed, that the potato disease is on the wane; we dare not say extirpated. The steadily progressive character of the restoration, however, through the country generally, is, in our opinion, sufficient to warrant a much increased amount of confidence in this general favourite; still second only to wheat as to the wants of the poor man. We may suppose that these are all planted by this period, and we may just remind our readers that if the early ones should be inclined to thrust their heads through the soil at the end of April, a little loose soil should be instantly drawn over them. We do not deem it safe to permit them to remain above the surface until the second week in May, unless some covering be furnished them. Moreover, it is by no means the case that the earliest above ground are the first in the market. We hold it good policy to get the potato at work, and full of root, as early as possible *below* the surface; such being the case, and no check from late frosts, they will grow with immense rapidity after the middle of May. We have found it a capital plan to drop a hill of new sawdust over each set, just as it is emerging from the soil. This protects without impeding the progress of the young shoot.

Mangold Wurtzel.—The ground must be forthwith prepared (if such is not done) by deep digging, and a liberal manuring; and if salt can be procured, let it be remembered that this plant is partial to it. The salt and soot mixture, so often recommended, would, doubtless, be of great service, in addition to a little manure. Mangold is not a remunerative crop in very poor soils; in those rich and deep with high culture, it is, perhaps, second to none in bulk and quality combined. Sow from the tenth to the twentieth of April, in rows of from twenty to twenty-six inches, according to the power of the soil; the plants being singled, *finally*, to a distance of ten to fourteen inches. Of course, the above advice is intended to apply to parallel rows. We always soak our seed in water for twelve hours previous to sowing.

The Swede Turnip.—It need scarcely be observed, that a very high degree of culture is requisite for all the turnip family; and the prime secret with the Swede, in order to avoid the fly, is to apply a little extra stimulus in the drill with the seed; the plant, to be safe, must grow with rapidity. Farmers use guano and finely ground bone to accomplish this; but for an allotment man we would recommend a mixture. For this purpose soot, very old mellow and powdery manure, leaf-soil, very old tan, &c., are eligible. Let a heap be formed on an in-door floor previous to use, the bulk regulated by the quantity requisite, adding the soot last. The soot need not constitute above one-sixth part, and if a handful or two of good Peruvian Guano can be added, it will amply repay; or if the plot be small, the cottager will find it good practice to apply the guano in a liquid state with the water pot, just after the plant has emerged from the soil. If he practice the latter, two ounces to a gallon of water is amply sufficient. The soot mixture must be thoroughly mixed, and almost any quantity of wood-ashes may be added to the mass, at least to the extent of half its bulk. This compost must of course be got in with the seed, and it may be introduced with rapidity by an active person, indeed, as fast he can walk. Such plans we have tried for years, and would farmers practice it, they would seldom fail. They, however, scarcely understand the power possessed by what scientific men term humus; or, in other words, the black and fine residue of the dung-heap, the rubbish-yard, or the wood-pile. Nothing so speedily promotes quick germination and rapid growth whilst the plant is young. Turnips, to remain where sown, may be got in from the early part of April until the end. These to transplant after other crops, must be regulated by the period at which their predecessors are cleared off.

Carrots.—We have before written repeatedly about the Early Horn; come we now to the larger kinds, as the Altringham Surrey, &c. Trench deeply, and introduce what manure is necessary in the lower part of the trench; we would have none nearer the surface than six inches, and none deeper than fifteen. Means must, therefore, be taken to blend the manure with the bottom spit, for the old way of *paring* the manure to the very bottom we entirely disagree with as a waste of property. Deep sandy soils are fittest for carrot culture; we have, however, known very good crops from adhesive soils where means had been taken to ameliorate them, and mellow dressings added. We consider carrots safer from the grub when sown late, say from the middle of April until the early part of May. Some able persons recommend spirits of tar as an antidote to the fly; it may be sprinkled over sawdust, and the sawdust sowed with the seed. Sow in drills about twelve to fourteen inches apart, and single out finally to about four inches.

Parsnips.—These, of course, are sown; more about cultural matters in our next.

Onions.—We have little to add to our last advice. Those who have not rolled them, had better do so when the beds are quite dry. Advice about the onion grub in next month's paper.

Jerusalem Artichokes.—If not planted, plant immediately. Moderately manured, and in rows of thirty inches; moderate sized sets planted whole, one foot apart in the row.

Pease.—A good row or two of the Blue Prussian, or Green Imperial, may be sown for the Cottager's *last crop*, in the first week of April; later than this will scarcely prove profitable.

Beans (*broad*).—A few more of the Broad Windsor or Green Long Pod may be planted immediately, in a half-shaded situation, on cool soil. We do not recommended them, however, for profit.

Runners.—Nothing more useful to the cottager. These should be planted in the middle of April, not later. There are many ways of cultivating these. Being ornamental, they may decorate the cottage porch, festoon around its windows, hide unsightly buildings, cover brick walls, palings, &c. As to mere utility, they are as well in a row, highly manured and dug deep. Their sticks *need* not be more than four feet high; but in that event, their heads must be pinched off just before they reach the top of the sticks; and topping must be repeated through the season if necessary. Runners should be well watered in dry weather.

Dwarf Kidney Beans.—Not so profitable or so good as the former; these do best in warm nooks or slopes. The Dun-coloured and Negro are the best. In rows, two feet apart; the beans four inches asunder; planted middle of April.

Parsley.—Sow a little directly; sprinkle some soot on the ground before digging.

Turnips (*Early Dutch.*)—Sow a few directly on any spare and poor plot.

Cucumbers and the Vegetable Marrow.—In a warm and much sheltered corner, exposed fully to the sun, dig out a trench three feet wide, and one foot below the ground level; scrape together all the green weeds, long grass, or other waste herbage, and fill the trench to the ground level; then place some manure, three or four barrowfuls, in a flattened ridge, two feet above the ground, and soil the whole over *slightly* at first. Make stations to sow the seed, two feet apart, by forming a hollow for greater depth of soil; this fill with rich mellow soil, and drop a few seeds in each patch. Slope a few poles over the whole, touching the soil

at back, but elevated at front; and get some old carpet, mat, or other covering, and lay it on the poles, night and day, for awhile, suffering the front to extend as far as the bed, or nearly so.

THE VARIOUS GREENS.—A little cabbage, as advised in our last, every month. If broccolis are required, sow Hammond's White Cape and Walcheren now, and in the end of the month; and Monmouth, Winter Imperial, and late White Russian, in the second week. Green kale sow directly; also Brussels sprouts and Savoys. The Green kale is most profitable, being so safe a crop; the Brussels sprouts on good soil are very useful, and will stand the hardest winter.

We have said nothing about lettuces, spinach, &c., having so often remarked on these before. We do trust that most of our allotment friends begin to understand the drift of all these little things, as what we term stolen crops. We always hold it a paramount duty to keep the cottager's attention well directed to his *root crops;* these must constitute the chief staple of his cottage, his cowshed and his pigsty.

ROBERT ERRINGTON.

HARDY BORDER FLOWERS.

DICTAMNUS.—There are two species of this genus, the red and the white. There is but very little other specific difference between these two plants, but that of colour; indeed, the one was, by many authorities, I believe, only considered a variety of the other. Both plants were introduced into this country in the year 1596, and both are natives of Germany. Any rich garden soil suits them; but all the better if a little peat be mixed with it. I always make it a rule, when I receive a new plant, whether from the nursery or a chimp (a rooted cutting) from a friend, to plant it well; that is, to well work the natural soil, and add to it a good portion of peat, turfy loam, and leaf-mould, all well worked up together. This will suit almost any hardy border flower; and, whether the plant be a rapid increaser or not, I take the first opportunity to obtain from it a chimp, so as to have at least a second plant in my possession. Of course this depends upon its beauty or rarity. Now, if these two beautiful young ash-tree-leaved-like plants are planted out in an open situation in a border prepared as I have before mentioned, they might remain in that same spot for twenty years, and I do not know how much longer, if not root-injured at the time the borders are dressed off; but a little top-dressing of the above-directed mixture, at this time every year, would be very beneficial; and the lover of these beauties is well repaid for such care by the scent imparted by merely drawing their large, long lemon-scented spikes of flowers through the hand. Strong, well-treated, established plants grow from two and a half to three and a half feet high from the ground to the tip of the large spikes of flowers. The plant being a slow increaser is one reason why it is not more common. It can be propagated by division of its crowns, which should be done with a little care. Any small bit with a root to it will make a plant. It flowers from the end of May to the end of July; and even its dry glandular capsules are eagerly sought after for their pleasing scent. I say the plants may remain in the same situation for twenty years, because we have two plants, one of the white and one of the red, which have stood in the same spots for the last eighteen years, and noble specimens they are at this time; and during the past years I have taken four or five portions from each; and should I have the pleasure to watch over them for another eighteen years, fifty to one if I should ever take them up or disturb their box-tree-like-looking roots. Their botanical names are *D. Fraxinella* (Red Flaxinella), and *D. Albus* (White Flaxinella).

VERBASCUMS are the plants I shall next make a few notes upon. They are a large family, the majority of which are showy biennials, both of the exotic and our indigenous kinds, and would look very showy if planted out at proper distances, in autumn or early spring, among trees and shrubs in plantations. They are most of them yellow-flowered. We have only one perennial kind in England; but there are four or five exotic perennial kinds that are worth keeping among our hardy border flowers, and once planted may remain in the same spot for several years. Any rich garden soil suits them. They have large fleshy roots, which should not be injured at the time the borders are being dressed. The perennials are readily increased by division. This family of plants, especially the perennial species, have one very great enemy in a very pretty caterpillar. These hearty feeders will very soon eat away all the herbage of the plant, and destroy all its beauty for the season, before one is aware of it, unless closely watched. Of course this caterpillar should be destroyed as soon as seen. Its parent is a moth called the *Cucullia verbaci.* (See THE COTTAGE GARDENER, ii. 81.)

The very best of these perennial Verbascums is *V. Phœniceum* (Purple Verbascum, or Mullein). This one in particular I have tried in many ways to grow for exhibiting at the Horticultural Shows; and as I never could lift the plant from the border into pot in full bloom without injury, the best way I ever hit upon was to plant good strong plants in 9-inch pots, in November, in a mixture of turfy loam, peat, and leaf-mould, plunging pot and all in the open border, and when the shoots were up from six to nine inches high, the following season I just pinched out the tips. This caused them to put out strong laterals so as to have a bushy plant. In this way I have succeeded, and shown beautiful specimens of this deep purple flowering species. It flowers from the middle of May to the end of June, or longer, because, in a rich soil, if the old or principal flower-stems are kept cut away, it continues putting up others in succession to the end of the summer. On the whole, it is a very neat and choice plant, not so often seen as it deserves to be. It grows about three feet high.

V. PUNICEUM (Light-red V., or Mullein). — This is a stronger and much coarser-looking plant, growing from two and a half to three feet high, and a profuse bloomer. It continues putting up flower-stems most of the summer months, when the advanced should be continually cut away, and attention paid to tying up the young shoots. Its flowers are of a cheerful lilac colour.

V. FERRUGINEUM (Rusty V., or Mullein).—This species rises from three and a half to four feet high. It is an interesting-looking plant, and in flower most of the summer months, if planted in a rich soil; producing rusty-brown flowers.

V. CUPREUM (Copper-coloured V., or Mullein).—This is closely allied to the last; but the flowers are rather more orange-coloured, and the plant is a much freer grower. It reaches from two and a half to three feet high. T. WEAVER.

THE APIARIAN'S CALENDAR.—APRIL.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide."

YOUNG BEES.—The population of every healthy stock of bees is now rapidly increasing, and numbers of young ones may be seen upon every sunny day crowding the entrances of the hives to exercise their wings for the first time, which they may be observed to do with the greatest caution, running from side to side of the alighting board, before venturing to fly; the imperfect nymphs, also, are strewed upon the alighting board of some hives during the night, to be carried away by the bees as soon as the hour of labour commences; this circumstance also indicates a rapidly increasing population. A very large quantity of food is consumed by the young bees while in the larva or maggot state, which draws very heavily upon the store of the food of the hive, which at present (March) can be very little augmented except by the careful hand of the Apiarian; it, therefore, behoves him to look very attentively to all his weak stocks, and more especially to swarms of the last year, and to let them have a regular supply of food; and for those who like but little trouble in feeding, *dry barley sugar* is unquestionably the best mode in which it can be administered; it may be given either at the top or bottom of the hive, for it does not, like liquid food, attract robbers to the hives that are supplied with it.

BURIED BEES.—I am now anxiously waiting the report of our friends who have buried their stocks for the winter. The time, I suppose, has now fully arrived for their disinterment, and I hope, through the pages of THE COTTAGE GARDENER, to learn the result of their experiments.

I received an account, a few days since, of *a late second swarm* which, in September, weighed only three pounds, including honey, bees, and comb, and which is now in the most healthy state possible, carrying home pollen as actively,

ore so, than any other stock in the apiary, and to ishment it has never had food of any kind admi- either in the autumn or the spring; but I have recommended its proprietor to lose no time in g it, for if carefully fed it will become a first-rate d without that attention I should say it *must* die.

e that I have already said enough upon the ad- of having *a supply of hives, glasses, boxes, &c.*, equal mand of the coming season, to induce every apiarian r himself without further delay.

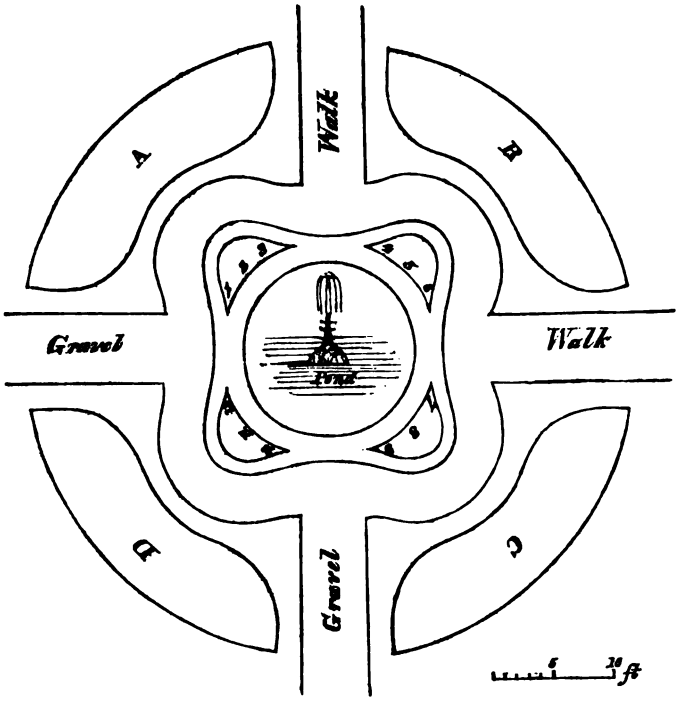
WASPS.—The time has again arrived for the des- of these insects; for by destroying one only, a nest, of thirty thousand wasps, will be prevented coming tence, robbing our bees and destroying our fruit. erable reward is offered for them in some places; eard of as much as sixpence each during the months of March and April; and, perhaps, where fruit is largely grown and bees are kept, it may not be ill-spent money. I am afraid that after this unusually mild season (winter it cannot be called), they will be very numerous; still, their increase depends more upon a mild genial spring, than upon the severity or mildness of the winter, for when snugly hybernated the cold has no effect upon them.

GUIDE-COMBS.—I would recommend guide-combs being fixed in glasses of every kind that are to be placed either on hives or boxes. The bees are induced thereby to commence working in them sooner than they otherwise would do, and it must always be remembered that simply putting on a glass, a box, or a small hive, will not prevent swarming, except the bees commence working in it, which a small piece of comb fixed at the top induces them to do more readily.

MENTING A CIRCULAR POND.

e 125th number vol. v. of THE COT- ARDENER, among the notices to cor- ents, I read, — "A large, Circular a flower garden, which is to have in in the centre, has a margin of grass t wide all round, then a gravel walk eet; now this pond looks cheerless in What can be introduced round, to armth in winter? The border is too for Rhododendrons, and rockwork is to." Then our worthy Editor says, y of our readers give a good sugges- And I think he is no bad judge, for tion is rather paradoxical. The fact driving one into a corner, when I learn turf is too narrow for small shrubs, kwork is objected to, and yet wish to warm, cheerful appearance in winter. ss and rockwork are two such adjuncts r, that no art can separate them with eficial effect.

will submit a plan of a pond, with a alk and mixed flower borders, inter- with small shrubs round it; and if nd can gather such a sufficiency of s will be applicable to the case in I shall feel most happy to think I sisted in helping him out of his diffi-



e plan before us, the size of the pond mined by the length of the beds and of the open spaces which surround w to commence operations, I will say want to make four small beds, to have three small in each. Two feet apart, and one foot at each end e edge of the bed, would be none too much for of very moderate growth; and that will make the s feet long, and then there must be a grass verge t wide, which will make eight feet; well, then, in my ion, I shall put it down seven feet for the beds, and or the open spaces; eight times seven are fifty-six— by three; the circumference of fifty-six feet is n feet, eight inches in diameter, then deduct four m that, to allow for a border of grass two feet wide d, and that will make the pond fourteen feet, eight n diameter (I know there are fractions, but this is ough to answer my purpose), and this I call a very ne. But for it to be in proportion, and in good ; with the other parts of the garden, the grounds o be of some extent to admit of a pond, even of this h its appurtenances thereto. Now, without knowing what the size of our friend's pond is, I apprehend e size of my intended one is about the same as his; will tell you why, the margin of grass four feet, and vel walk six, makes a broad band, encircling the en feet wide. The alterations I propose, according nnexed plan, is all done in the same space; thus rgin of grass two feet, semi-circular beds three feet rass verge one foot, and the gravel walk four feet, t in all, thereby proving the practicability of the should our friend approve of my suggestions. The straight walks are six feet wide, the four beds marked A, B C, D, are intended as mixed flower borders, interspersed with evergreen shrubs; the figures in the four small beds round the pond, allude to the twelve small shrubs, which I recommend for variety, and having a cheerful appearance in winter.

1 Silver Edged Box	7 Sweet Bay
2 Common Holly	8 Silver Edged Holly
3 Accuba Japonica	9 Common Box
4 Arbutus	10 Golden Edged Holly
5 Savin	11 Arbor Vitæ
6 Golden Edged Box	12 Laurestinus

Many of these, in a good situation, will attain a large growth. But by selecting, in the first instance, small plants of compact growth, and then, in after-management, by a little judicious pruning, they may be kept within the required compass for a very long time. It would be useless to attempt Rhododendrons, Kalmias, and many other American shrubs, without making up the beds with peat. I should like to know, through the medium of THE COTTAGE GARDENER, what decision our friend comes to in this matter.

GEO. HASKER, *Ball's Pond, Islington.*

TREES SUITABLE FOR PARK SCENERY.

It being now well known that THE COTTAGE GARDENER is read by many classes of readers, as well as the amateur and humble cottager, a few remarks on the judicious selection of trees proper to plant, singly or in groups, in the

parks or grounds surrounding a mansion, may, perhaps, be of service to some of its numerous readers who may be contemplating alterations or additions to their park scenery; and as the instructions left by that class of professional gentlemen, called landscape gardeners, seldom descends to particularise the kind of tree adapted for the different purposes they may have planned out, we think a few hints to our gardening friends may be of service in preventing their falling into errors fatal to their reputation hereafter.

It is hardly our province here to suggest where a single tree, a group, or a bulk of trees are to be planted, for such details can only be arrived at by a careful observation of the various objects in view on the spot; but it is generally admitted that certain prominent points, as the front of a mansion, a summer-house, some elevated portion of the lawn, or other conspicuous positions, should form points from which distant objects of interest might be distinctly seen to advantage; while the judicious hiding of objects less pleasing to look upon, by prudent planting, forms the highest branch of the art of landscape gardening. But as the various works already before the public convey, as far as paper and print can do, a correct notion of such matters, we will leave the selection of sites for the various objects to be planted, and descend at once to our remarks on trees adapted for the various purposes.

For distinction, it is proper to say that the principal features in park planting are the single tree, the group or clump, the avenue, the screen, and the belt. Plantations on a more extended scale have generally other objects in view than picturesque effect, and consequently do not come under our present view. We shall, therefore, begin in the first place with single trees, and point out such species as form the most pleasing objects, combined with other qualities, enabling them to withstand the inconveniences of their isolated condition.

SINGLE TREES.—Under this head we presume our readers will expect to find us pointing to the *Oak*. Poetic feeling and national objects have vied with each other in doing homage to this so-called king of the forest. But, though we are not, as here implied, so disloyal as to dispute his title, we yet think he has many compeers equally, if not more, deserving of the coronet as chief baron of single trees. Not but that the oak often is found in great beauty, but we think he must yield to the wide-spread limbs of the full-grown *Walnut*. When a good specimen of the latter is seen to advantage, it is generally acknowledged to present as beautiful an outline as any tree we are acquainted with. In saying this, we may as well explain that we do not confine our observations to the appearance certain trees have at stated periods of the year; fine and pathetic as the feeling may be that regards the tree only with interest when in the "sere and yellow leaf;" and far be it from us to impugn that feeling, yet we often think an undue importance, and what is worse, an erroneous impression gets abroad on the merits or demerits of certain trees at that memorable period. Who has not heard the oak lauded as possessing all the tints of the rainbow, while of the *beech* and other trees few have sung? Leaving that subject, however, we may say that we look to the appearance that single trees have in winter, as well as in autumn, and in our opinion the *walnut*, the *horse-chesnut*, *beech* (for its feathering tips), and the *plane*, are all equally valuable as the oak as single trees. We must not forget everybody's favourite, the *White thorn*, than which we know of nothing more really beautiful; the common white being the best for distant views. The *sweet chesnut*, also, looks well as a single tree, its white blossoms contrasting well with its glossy green leaves. The *lime* and *maple* may be more sparingly planted, but we confess we do not admire them very much; still less do we like the *elm*, its dirty looking limbs loaded with a superfluity of small black twigs gives it anything but an agreeable aspect in winter; besides, those limbs are more liable to break off than those of other trees. The *Sycamore* is more suitable, but *ash*, and the whole tribe of tall *poplars*, are out of place here; while many of the less common deciduous trees, as the *Tulip tree*, the *Acacia*, the *Purple beech*, &c., are more proper as adjuncts to the group or belt, than to stand unsheltered in an isolated state.

We fear, if the amateur thinks our list of deciduous trees proper for solitude meagre, he will think our catalogue of evergreen ones still more deficient, for, we confess, we have not much faith in many of the lately introduced *Pinuses* proving at all suitable as single specimens. We have, however, the *Cedar of Lebanon*, which we unhesitatingly place first. *Evergreen oaks* seldom do well alone, although many are found in single stations, which have, however, been nursed by other things. *Yews* will brave the weather in any dry exposed place; but where cattle are expected to feed they are dangerous, for fear of their browzing on the leaves. The *holly* is better adapted for plantations. If *Pinuses* must be planted singly, try the *Deodar Cedar*, and some of those partaking of the character of the Scotch fir, taking care to select such as have proved themselves sufficiently hardy to withstand not only the cold, but the tempestuous winds which single specimens are subjected to, and mindful, that although a deciduous tree in a reclining position may at times appear natural, and consequently picturesque, that a pine can only have a distorted look when it becomes so. S. N. V.

(*To be continued.*)

HISTORY OF AN APIARY.

(*Continued from page* 277.)

ON the 13th of May, early in the morning, I released my prisoners in the old hive, which (as it took the place of the *fourth* stock, whose fate has been already reported) I termed "2nd D." The day before it appeared the hive was in great commotion, which argued that the population had increased, and was increasing. Happily the sun had shone out brightly, so that, striking on the hive, it had supplied the want of natural heat, occasioned by the paucity of its inmates, and had, doubtless, hatched out many young bees. On first examining the hive-entrance, before I withdrew the list-bandage which obstructed it, a considerable humming was already perceptible, though so early in the morning; the bees, too, were busily employed in gnawing at the list, through which they would soon have forced their way. No sooner was the bandage withdrawn, than an eager rush of the liberated insects took place, and within half-an-hour I counted upwards of a dozen that had returned from the fields laden with pollen,—so speedily had they reconciled themselves to their circumstances. The new swarm also appeared contented with its new dwelling, crowds issuing and entering earlier and later than usual.

Nothing of importance occurred till the 18th, save only that the weather having become cold again, I thought it prudent to feed the new swarm (which I had presented to the kind friend who allowed me the use of his garden) with two or three pounds of honey. On the 18th, however, I went to assist an intelligent cottager in the parish in forming a swarm artificially from his only hive, which seemed full of bees. Whether the drones had appeared or not, he could not tell; indeed, he professed himself quite ignorant of the natural history of bees, never having been aware of the existence of more than one sort of the genus Apis. Now, I could not have ventured to make an artificial swarm without clearly ascertaining beforehand the presence of drones; the more so, as this was the only hive in the place; but to make sure, the bees were driven in the usual manner, and knocked out of the temporary hive into which they had climbed, in front of the dwelling intended for them; at the same time that the old hive was carefully removed to a new stand and tied up. On attentively scrutinizing the swarm now exposed to view, it was evident that no drones had yet appeared; but we saw the queen distinctly, and watched her enter the new hive, followed by her subjects. Leaving these bees, I turned up the old hive once more and carefully examined the combs to see if any drone brood could be found ceiled up in their cells. The search, however, having proved vain, the old stock was set on the ground, and the swarm once more dashed out before it, and into it they seemed right glad to enter. It was now replaced in its former situation, whither all the *out-flying* bees quickly resorted; nor did many minutes elapse ere the garden presented its usual appearance, save only that the bodies of some hundred bees lay about the place, the unfortunate victims of our experiment. The cottager, who had been the first to spy out the queen, took a share and a lively interest in the whole proceedings; and in spite of our ill-success, professes himself willing to renew the experiment another year. Indeed, we had resolved

to renew it immediately that the drones appeared; but as he lived at some distance, and could not tell a drone from a common bee, the hive was left to its own resources. It threw off a famous swarm accordingly on the first of June, and a cast some days later, which, however, returned to the parent stock. Both hives are now heavy, and promise well. I mention this story to show with how much impunity a stock may be meddled with even at the height of the breeding season; it should, however, be carefully handled for fear of disengaging the combs, which are now heavy with brood, especially in the case of a new hive, whose combs are fresh and brittle.

Three days after the above incident I paid my apiarian friend, Mr. C., a return visit, and assisted him in forming several artificial swarms. He had three stocks, in different degrees of prosperity, upon all of which he determined to operate. The first, a very strong one, had been set over an empty flat-topped hive, far down into which the bees already descended, though no works had yet been commenced in it. This was driven in the early morning, before breakfast, with complete success, though these bees were excessively irritable; the fact was, that the day before saw the commencement, in this part of the country, of the grand honey-harvest of the year, and the bees, in consequence, were in an universal state of bustle and activity. The morning, too, was warm and cloudless, and the sun shone full upon the hive. It *may* be (though I am as sceptical as anybody on the point) that the bees had scented the *honey-dew*, and that this was one of those critical moments when (to quote Dr. Bevan's words) "so great is the ardour of the bees, and so rapid their movements, that it is often dangerous to be placed between the hives and the dew."* Be this as it may, thanks to the protection afforded by two of Mr. Payne's admirable bee-dresses, our insect foes were vanquished in spite of prodigies of valour on their part; the swarm was driven out of the old stock in due time, forced to enter a large new hive, seventeen inches in diameter by twelve inches in height, and (in the course of the afternoon) made to replace the old stock, which, by the way, had been instantly removed to another stand (after the expulsion of the swarm), fastened up, and well shaded from the sun. In this instance, because we had taken precautions to leave a considerable number of bees among its combs, the aid of artificial or external heat was not so necessary as in the previous case.

Towards the close of the day, about six o'clock P.M., we drove, with equal success, the *second* stock, in which no drones had yet appeared, on which account I in vain endeavoured to dissuade my friend from disturbing them. A considerable number of bees in this instance, also, were left among the combs of the old hive, which was moved away as the former had been (its place being taken by the new swarm, its hopeful offspring), and planted close beside it, with all the means of egress from it carefully stopped up. The swarm obtained at this second driving could not have been more than one-third as large as the first swarm, yet it was placed, contrary to my advice, in a hive in every respect similar to the other.

The *third* artificial swarm was not made till quite dusk. As the old hive was only half full of comb, not half the bees were got out of it. These, however, were shaken out at night into a small flat-topped hive, and took the place of the old hive, which, in its turn, was located near the other similarly circumstanced hives, and treated in the same manner.

On revisiting the scene of action the following day, all the swarms seemed to be very busy; but, on examing the *third* swarm the next morning, to our astonishment, not more than a cupfull of bees were found in it. The only reasonable conjecture we could make, and it was doubtless the true one, was, that we had failed in driving the queen, on which account, when the bees missed her, they must have entered the neighbouring hive, which fortunately happened to be the weakest of the two remaining swarms. Certain it is that this swarm, which had been small out of all proportion to the extent of its dwelling, appeared to have increased considerably in size, and it throve far beyond my utmost expectations, as will be shown in the sequel.

The imprisoned bees in the old stock, whose inhabitants had first been driven, were liberated the second evening, the others not till the third morning, after which everything seemed to go on well. Thus we had succeeded in forcing two magnificent swarms (one answering to this description more particularly), while the three original stocks remained for further experiment; two of them being without queens, as we certainly ascertained afterwards, and all three sufficiently well off in point of population. A Country Curate.

* Happening to be in London the other day, I availed myself of the opportunity of increasing my apiarian library by sundry purchases among the Holborn booksellers. Among other authors an old copy of Bonner's celebrated work fell into my hands, who, I find, was himself practically ignorant of the existence of honey-dew, and its collection by bees. As this is at present a subject of critical investigation among your apiarian readers (and we must all have our eyes about us next summer), I may be allowed to transcribe the following observations of this admirable bee-master. "A friend informed me," he says, "that he has often discovered both *bees* and ants upon the oak leaves, sipping the honey-dew; which agrees with the Abbé Boissier de Sauvages's account of it in France, as quoted by Wildman. For my part, although I have often travelled many miles in the finest weather to places were oaks were growing in great abundance, in order to satisfy myself on that point, yet I never could discover a single drop of honey on them or any bees to collect it. And many persons have assured me, that they never saw a single bee upon an oaken-leaf collecting huney." Yet he goes on to say, "I am, nevertheless, far from discrediting the report; as those who are situated nearer extensive woods have doubtless much better opportunities of ascertaining this fact than I. And that there are honey-dews to be discovered in such situations I readily believe, as I have often observed my own bees collecting honey (? propolis) from the *outsides* of the sockets of different flowers, particularly from those of the wild runchos (?), instead of extracting it by their proboscis from the *inside*. I have sometimes, though very seldom, observed them on a fine morning about sunrise, busily employed upon the leaves of a white thorn at a time when there was not a single flower to be seen on it." I have, myself, seen *much* sweet dew on oaks, but certainly not a bee to eat it.

THE YEARLY TRANSACTIONS OF THE HEN-YARD.

A PRACTICAL GUIDE FOR THOSE WHO MAY WISH TO KEEP A FEW FOWLS AND FIND THEM PROFITABLE.

(*Continued from p.* 389.)

APRIL.

Having now considered at large the management of the hen whilst sitting, we next come to the process of *hatching*, and the care of both hen and chickens at that period.

From the twentieth to the twenty-second day, the little chickens make their appearance. The hatching will sometimes take place on the nineteenth or twentieth day, but the day three weeks is, I believe, the most usual time. I have found it best to take the chickens away from the mother, until she has hatched all the eggs; but I have known some persons who leave them with the hen, and have quite as much success with their broods as I have. The hen must not be disturbed more than necessary while hatching—at the usual feeding time, and once more in the twenty-four hours—not oftener.

As to helping the chickens out of the eggshell, this is indeed a sorry task, and I am sorry, on this point, to agree with all who have written on the subject. A chick that is too weakly to get out of the shell without assistance, stands little chance of living to enjoy the life thus preserved to it. Malay chickens, however, I have assisted with success, for in the eggs of this fowl, the inner skin of the shell is so tough, that a strong chick is often unable to burst it without help. In this case, after the egg has been sprung sometime, and if the chicken makes the shell crack, but is unable to to break the inner skin, this may be a little nipped with something sharp, but it must be done with the greatest care, as a touch may kill or greatly injure the little delicate being within. When you remove the hen, clear away the empty shells and any eggs you are *quite sure* are bad, but handle them with the greatest caution.

Wet, or at any rate damp weather is most favourable for hatching. If the day is fine and dry, I have found it a good plan to moisten the air artificially. Have a tea kettle full of boiling water carried into the hen-house, place a watering-pot near the nest, and pour the water into it making as much steam as you can; then with the water in the watering-pot, water the floor of the house, using a rose. If the hen is tame, she will be glad to have a little water offered to her on the nest, and will drink eagerly. If the little chickens are removed from the nest while the hen is still engaged in hatching, they must be placed in a basket and kept warm. If a knitting pattern could be admitted within the pages of a book on gardening, I could give a receipt for a much better temporary mother than a simple piece of flannel.

…ne receipt will be quite admissable.—ED. C. G.] In keeping them warm, care must be taken not to exclude the air too much.

To enable the chickens to force their way out of the shell, each little bill is guarded at the tip by a small horny protuberance, I do not know that it is necessary to remove this, but I always do so nevertheless; it is very easy to take it off with the nail. In sixteen or twenty hours the little strangers will be glad to peck tiny crumbs of bread or groats broken up small, and will drink a little water. They will soon ask for this refreshment so often, that notwithstanding Mr. Canteloe's success in chicken raising without the hen's care, you will be very glad to give them back to their rightful owner, and to use the intervening services of a good mother hen.

As I have been requested to give a more precise account than I have already done, of *the place in which I keep my own fowls*, and also to give an opinion as to how small a run will suffice, I must for the present defer the consideration of the care necessary in raising the young broods.

My present hen-house is a two stall stable of the usual dimensions. The farther stall is fitted up with perches, and the other is supplied with nests for laying and sitting: this is also used in the spring for the young broods and their mothers. Some nests are made in the manger, and others in square boxes, measuring sixteen inches by twelve, which are placed on and under the manger. The yard where they run for the greater part of the day, contains about 65 square yards, and is well sheltered from cold winds. For a few hours every day, the fowls are allowed to run out into the orchard. Having this accommodation at my disposal, I last spring reduced my number to eight hens. From these I raised about fifty chickens; five died from accidents, which might be avoided by greater care. Killing for the table commenced as soon as the chickens were large enough, but notwithstanding this, they became rather too much crowded in autumn, and, in consequence, I lost three or four from sickness. Taking warning by these mischances, I shall not raise a smaller number, but shall only use more frequent cleaning and white-washing. I have not, however, always had so much room. The smallest place in which I have kept fowls with advantage, was a little, well-sheltered yard, twenty feet long and ten wide. It was surrounded by rather a high wall, covered in at the top with a net, and the house (four feet by eight) was built in one corner. This yard was on one side of a semi-detached dwelling house and as it was warm and dry, the fowls did very well. I think two or three broods a year would be as many as could be raised with advantage in such a small place, and it would be a a good plan to have the fowls of a sort, which might with safety be allowed to run out into a road or lane. I should only give them this indulgence for three or four hours in the day, both for their safety, and also because too much liberty makes the hens wild, which is very inconvenient, especially for sitters and mothers. At another period, I found the fowls do worse in a larger place, on account of the yard having an eastern exposure.

Our readers had better take this opportunity to have the hen-houses well cleaned and lime washed, as sitting hens and young broods, will soon render the operation more troublesome.

DAILY WORK FOR APRIL.

The same as last month, with the addition only of constantly feeding the newly hatched broods.

ANSTER BONN.

(To be continued.)

HONEY CONSUMED BY BEES IN WINTER.

I HAVE often troubled you in reference to my bees, and now enclose you the result of my monthly observations upon seven hives. My table does not show the correctness of the remark—"that doubled stocks do not consume more food in winter than single ones." Nos. 1, 3, 4, 6, and 8, were fed in the autumn with prepared food; 6 and 8 had nothing else. This, however, would not account for their large consumption, as No. 5 was not fed, and the loss in it during the winter has been greater than in four of the hives above named.

On referring to my notes of last year, I find that No. 5, then a single swarm, lost from 9th September to 1st October (21 days), 5½ lbs.; while No. 6, bees from two stocks united 7th August and fed, lost from 30th August to 1st October (31 days) only 3½ lbs., leaving a considerable balance in favour of the doubled stocks. How to account for the difference I know not. B. B.

[Mr. Payne will have something to say upon this subject.—ED. C. G.]

Loss on 3 Hives during Winter 1850-51.

No.	Wt. 1 No.	Wt. 1 De.	Loss in Nov.	Wt. 1 Ja.	Loss in Dec.	Wt. 1 Fe.	Loss in Jan.	Wt. 1 Ma.	Loss in Feb.	Total Loss.
I.	17¾	14	3¾	12	2	9¾	2¼	8	1¾	9¼
III.	15¾	14¾	1	13¼	1½	11½	1¾	9½	1¾	6
IV.	16¾	15¼	1½	13¾	1½	12¼	1½	9¾	1¾	6¼

Total Loss on 3 Hives in 4 months 22

N.B.—These hives had 9 oz. of Mr. Golding's syrup between 21st February and 1st of March; and in that time, in addition to this quantity of food, they lost:—No. I. ¾ lb.; No. III. ¼ lb.; No. IV. ¼ lb.

No. I. are bees saved from burning—3 stocks united; III. and IV. are casts to which 1½lb. of bees were united to each.

Loss on 4 Hives during Winter 1850-51.

No.	Wt. 1 No.	Wt. 1 De.	Loss in Nov.	Wt. 1 Ja.	Loss in Dec.	Wt. 1 Fe.	Loss in Jan.	Wt. 1 Ma.	Loss in Feb.	Total Loss.
II.	27	20¼	¾	25	1¼	23½	1¾	21¾	1½	5¼
V.	19½	18¼	1¼	15¾	2½	14	1¾	10¼	3½	9
VI.	17¾	16½	¾	15	1½	14	1	12	2	5¾
VIII.	17	14	3	13	1	11	2	9¼	1¾	7¾

Total Loss on 4 Hives in 4 months 27¼

N.B.—No. II. an old stock to which no union has been made; No. V. a swarm to which 1 lb. of bees was added; No. VI., bees from two stocks united 7th August and fed; No. VIII., bees from three stocks united 7th September and fed.

NEW AND CHOICE DAHLIAS.

NEW, TO BE SENT OUT IN MAY.

Admiral (Bragg); fine lilac. 10s. 6d.
Arthur (Flandre); rose. 7s. 6d.
Barmaid (Holmes); clear white. 10s. 6d.
Berangeт (Fauvel); crimson purple; fine. 10s. 6d.
Charles Turner (Turvill); blush, tipped with purple; constant, with a compact centre. 5s.
Colonel Bacon (Whale); rosy crimson. 10s. 6d.
Consolation (Meillez); vermilion scarlet; fine shape and habit. 5s.
Elizabeth (Whale); white, edged with lavender. 10s. 6d.
Gem of the Grove (Soden); dark maroon. 10s. 6d.
General Fauchier (Rose); reddish cinnamon; fine. 10s. 6d.
Gracilis (Salter); orange fawn, tinted with rose; very fine shape, and good show flower. 10s. 6d.
Hon. Mr. Herbert (Dodds); light buff, shaded with golden amber; 10s. 6d.
King of Dahlias (Morgan); fine crimson; extra. 10s. 6d.
Lady Eleanor Cathcart (Turner); white, edged with purple. 7s .6d.
Madame Kuhlmann (Bauduin); white, mottled with rose pink; fine. 10s. 6d.
Napoleon (Parker); rich vermilion; fine. 10s. 6d.
Pirolle (Voisenon); crimson amaranth; fine. 10s. 6d.
Queen of Beauties (Mitchell); waxy white, tipped with bright cherry; fine. 15s.
Summit of Perfection (Keynes); dark velvety purple. 10s. 6d.
Uranus (Salter); orange, shaded with rose; fine. 10s. 6d.
Yellow Gem (Gurney); clear yellow. 10s. 6d.
Yellow Superb (Keynes); clear pale yellow. 10s. 6d.

NEW FANCY DAHLIAS.

Pecq (Miquet); blush edged with yellow, and striped
ı red; fine form. 10s. 6d.
ssima (Mitchel); rose peach, tipped with white.
. 6d.
(Buck); purple violet, tipped with white; fine.
. 6d.
ınsard (Union); yellow, tipped with white; fine.
. 6d.
(Tassart); orange, striped with crimson; large and
. 7s. 6d.
Charlotte (Miquet); violet purple, tipped with
te; extra fine; the best in its class. 10s. 6d.
(Turner); yellow, tipped with white, and sometimes
ped with crimson; curious and fine. 7s. 6d.
(Tassart); large; red crimson, tipped with white.
6d.

LECT OLDER VARIETIES (*price* 24*s. the dozen*).
Girl (Cook); orange salmon. 3 ft.
n (Edwards); crimson purple. 3½ ft.
ıdo (Salter); canary yellow; extra fine. 3 ft.
th (Daniels); fine lilac. 4 ft.
lda (Batteur); rosy fawn; extra. 3 ft.
Turvill); shaded plum; large high centre, and
ıstant. 4 ft.
ıonne (Sieckman); clear yellow. 4ft.
ward (Salter); vermilion scarlet; extra fine. 5 ft.
cent (Keynes); mottled amethyst; extra fine. 3 ft.
ıiselle H. Gobert (Voisenon); clear rose; extra. 4 ft.
ldon (Turner); clear yellow; extra. 3 ft.
Fellows); nearly black. 4 ft.
f Lilacs (Turner); pale lilac; fine form, and excel-
t show flower.
– *Primroses* (Keynes); fine primrose. 4 ft.
– *the Isles* (Skynner); white, tipped with deep
ıson; extra fine. 3½ ft.
(Fellows); orange saffron; fine. 4 ft.
Lathurst (Keynes); fine crimson; extra fine. 3 ft.
l (Barnes); pure white. 4 ft.
e (Dodds); pure white. 4 ft.
Bank Hero (Robinson); rich crimson. 4 ft.

ELECT OLDER FANCY DAHLIAS (24*s. per dozen*).
on (Balleur); yellow buff, striped with crimson.
.
a (Salter); pure white striped with rose and crim-
3 ft.
ı (Prockter); rose, tipped with white; extra. 4 ft.
eauty; rose, tipped with white. 3 ft.
e-not (Hooper); rose crimson, tipped with white;
a.
Dodds); orange, mottled with red. 3 ft.
l Chief (Keynes); red salmon, tipped with white.

· (Fauvel); chesnut, tipped with white, 3½ ft.
de Von Kostritz; scarlet, tipped with white. 3½ ft.
Durr; yellow, tipped with white; extra. 3 ft.
ouchere (Turner); scarlet, tipped with white. 3 ft.
Jour (Batteur); orange, striped with crimson. 4 ft.

SELECT OLD VARIETIES (12*s. per dozen*).
la (Collison); buff and pink; fine. 4 ft.
ı (Whale); white, bordered with carmine.
gle (Simkins); nearly black.
Turner); white and crimson, mottled. 4 ft.
ı (Whale); good yellow.
Clarendon; scarlet, bright scarlet orange; fine. 3 ft.
Jerome (Widnall); violet purple; fine. 3 ft.
ie North (Edwards); bright purple. 4 ft.
rop (Oliver); yellow; fine. 3 ft.
Brandhoff); white, tipped with carmine.
· (Turner); ruby crimson; fine form, and noble
. 5 ft.
· (Laloi); rosy purple; extra. 4 ft.
ior (Edwards); purple crimson.
n (Turner); rose purple; a noble constant dahlia
st-rate properties. 3 ft.

LECT OLD FANCY DAHLIAS (12*s. per dozen*).
Togent (Mea); scarlet, tipped with white.
Conspicua (Salter); crimson violet, tipped with white.
Dulcinée (Morat); violet, tipped with white.
Emperor de Moroc (Haidboy); brown, tipped with white; extra.
Flora superba (Hooper); yellow, tipped with white; extra.
Gasparina (Foursten); maroon, striped with white; extra.
Minna Troil (Knight); scarlet, tipped with white.
Miss Blackmore (Dodds); purple, tipped with white; extra.
Œilet Parfait (Pavis); orange, striped with red.
Picotee (Pavis); yellow, striped with red.
Rainbow (Keynes); red, tipped with white.
Striata perfecta (Batteur); lavender, striped with rose; extra.

CHARCOAL FIRES FOR SMALL GREENHOUSES.

As it may be interesting to some of your readers, I will state the result of a two winters' trial of the above, as burnt in a Boughton's patent stove, which is of nearly the same construction as both Carman's and Joyce's, excepting that the regulator is at the bottom, and that there is a half-inch pipe passed through it from top to bottom, thus allowing a circulation through it of heated air.

1. There is no advantage in using the patent charcoal; the ordinary kind costing less and answering quite as well. 2. Use it broken to the size of a walnut, as it lies closer and ought to cost less: I give for small 1s. 6d. per bushel. 3. If well lighted, and a moderate draught of air, the regulator may be pushed in to within one-fourth its length, and then the heat will be more uniform, and it will last from eight to nine hours before it will require to be refilled. Two bushels and a half serve me for about 250 hours—say eleven days and nights.

Against this there are several disadvantages to be set off: 1. If in heating the fuel any coal should get mixed with it, it gives out a disagreeable sulphurous smell. 2. It causes, unavoidably, much dirt and dust, even if always removed to be filled up; and it must not be placed in the house until the heavy smoke has passed away, thus giving much more trouble. 3. You cannot raise a uniform temperature; as while when at its height it will raise the temperature to a heat of 60° to 65°, it will afterwards fall to a little above freezing before it is quite out; at the same time, experience in regulating will go far towards remedying this, but, of course, cannot wholly prevent it.

Taking the *pros* and *cons* into consideration, I purpose abandoning this mode, as I have the convenience of gas, which I have just laid on, having seen it answer very well at a neighbour's. The mode adopted by him in his lean-to house of three lights is that of a six-inch tube of iron running along the front of the house under the shelf, about twelve inches from the ground; in the centre of the tube is a gas-burner, and a small tube at each end of the larger tube passing through the wall into the open air, by which the consumed and foul air escapes.

W. D. Paine, *Cannonbury Park.*

FEEDING YOUNG CHICKENS.

As experience is better than theory, I just trespass on your time for a few minutes, with a remark with regard to the poultry yard.

I for some time fed my young chickens on groats, which I was told was the best thing they could have. Great numbers of my chickens used to gradually pine away and die out of every brood; the reason I could not discover. However, last spring, on visiting a farmer, his wife told me, that she had long since given up feeding her chickens on groats, as she could not insure their being fresh, and when stale they griped the chickens, and often killed them.

I took the hint, and have never since given my chickens groats, and they have done remarkably well. I now give them boiled rice, or ground barley; the latter I find an excellent thing; it is not ground to meal, but broken into about the size of a pin's head.

H. L. K.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "*To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London.*"

COCHIN CHINA FOWLS.—*Mr. R. H. Bowman, Rose Vale, Penzance,* writes to us as follows:—"I would strongly recommend your Cheshire correspondent, who wishes to buy fowls of the genuine Cochin China breed, to obtain them of the stock recently imported, and which took the first prizes, and also an extra silver medal for unusual merit, at the Birmingham Exhibition in December last. There are very few of them in this country, and I consider myself fortunate in having secured some, though at a high price."

WASTE CHLORIDE OF LIME (*A Constant Subscriber*).—This refuse from the bleachers will be a good addition to your decayed vegetable matters. It speedily is converted into muriate of lime, which absorbs moisture from the air, and is very beneficial to light soils. Ten or fifteen bushels per acre will be enough.

TEACHER OF BOTANY.—Mr. W. F. Rogers, 6, Loughborough Park, near London, wishes to meet with a person who teaches botany.

PAYNE'S COTTAGERS' HIVES.—The prices of these are *eighteenpence* for the hive itself, and *twentypence* for the small depriving hive attached.

THE WINTER CHERRY (*N. C.*).—This plant is the *Physalis edulis*. It would grow from seeds, but we cannot tell where you could get them. Carter, seedsman, Holborn, keeps such uncommon things, and possibly might have them. If you get seeds, sow them in a hotbed directly; transplant the seedlings into small pots, and grow them on as you would a Balsam. As soon as they are large enough, plant them out against the back wall of a vinery. We once saw a wall 30 feet long and 12 feet high quite covered with this plant, having hundreds of fruit upon it. If you cannot get seed, we think Mr. Appleby could procure you a plant or two—It fruits the first year; he also can supply you with plants of green ginger.

THE LILY OF THE NILE (*Ibid*).—This is the Egyptian Lotus, *Nymphæa cærulea*. It should be kept constantly in water, but more shallow in winter than in summer. It requires a moderate stove heat. *Rotted grass* will make vegetable mould, but it is too close for potting purposes. Your seedling *Turkey fig-trees* will fruit, but require at least three or four years' growth first.

HARDY HERBACEOUS PLANTS (*J. H. B.*).—The following are good hardy, herbaceous flowering plants:—Adonis vernalis, Aconitum variegatum novum, Alyssum saxatile, Anchusa Italica, Anemone Japonica, Aquilegia glandulosa, Asclepias tuberosa, Aster amellus, Campanula carpatica, C. pyramidalis, Chelone ceutranthifolia, Coreopsis lanceolata, Delphinium Barlowii, D. Atkinsii, Gentiana asclepiadia, G. gelida, G. saponaria, Geum splendens, Iris, many varieties; Lobelia cardinalis, Lupinus grandifolius, L. polyphyllus, Pœonias, Penstemon speciosus, Phlox, many varieties; Potentilla Maudyana, Pulmonaria virginica, Statice latifolia, Yucca filamentosa, and Y. gloriosa.

ANEMONE AND RANUNCULUS BEDS (*A very Young Gardener*).—These are in light good soil. This is not right; they will do better, and ought to be, in good heavy loamy soil. This year you can only try to mend yours by treading very hard between the rows. You do right to shelter from frost, but uncover directly the frost disappears. You may water them if they appear dry, but only in a dry warm morning as yet; weak liquid manure may be applied occasionally. All the other flower roots you mention may be benefited by the same application, but dilute it with three times the quantity of water, and expose it to air a day or two previously to using. Roses will bear it much stronger.

HEATHS DISEASED (*J. W. F.*).—What you call *rust* in Ericas is, we suppose, what cultivators in general call *mildew*. It is a parasitical disease, which may be got rid of by dusting the plants infected with it with flower of sulphur. The cause of it is too close treatment: a free circulation of air, with plenty of light, is the best preventive.

MINIATURE STOVE (*B. T., Bath*).—You have converted a Wardian case into a miniature stove by heating it with small hot-water tin pipes, and a lilliputian boiler. We admire your ingenuity, and think it will answer in a small way for all the things you mention. The way to manage it will be exactly as you would a stove. Give air when the sun shines, shade at the same time; give moisture in the air by syringing the plants. Cuttings will strike readily in such a little warm pit. We can only give you hints for its management; having, we confess, had no experience with such a "case." The *Bignonia capreolata* is a cool greenhouse creeper.

FLOWERS FOR A NORTH BORDER (*I. I., London*).—You wish for a list of creepers and flowers to grow against and in front of a north wall. Very few things will do. *Ivy* is the best thing as a creeper, but you might try the hardy *Clematis montana*, and a few common *honeysuckles*. On the border you might plant the *Christmas rose, Primroses* of sorts, *Violets, Lily-of-the-valley, London pride*, some few bulbs, with biennials such as *Wallflowers* and *Sweet Williams*, to be renewed every March; but do not expect too much.

CALCEOLARIAS (*I. K.*).—It is not an easy matter to inform you where to obtain the calceolarias you mention: some of them were exhibited by gentlemen's gardeners, who raised them themselves; and, consequently, they are not in the possession of any nurseryman. About half a dozen may be obtained of Mr. Appleby, Pine-apple-place, and a few of Mr. Gaines, at Battersea. They will average about 3s. 6d. each. The leaves you sent with spots upon them are not diseased by anything taken up by the roots. We found some eggs of thrip upon them, and suspect they are the cause of the black spots. Pray give your house a good smoking for two or three nights in succession. This will kill the living insects; the eggs may be destroyed by washing with a sponge dipped in tepid water.

HYBRIDISING GERANIUMS AND VERBENAS (*W. J. M.*).—This will take place naturally during summer, if you place some of the best kinds together, and allow them to be rubbed against each other, and flies and bees to have access to them. If you wish to be particular, you must remove the stamens of the mother plant before the pollen bags open, and dust the stigma of the pistil with the pollen from another desirable variety. And if you wish to be very particular, you must label such fecundated flowers, and cover them with thin guaze bags; but for general results this is seldom done.

PIT FOR WINTERING GERANIUMS (*Ibid*).—What exposure, and how heat it most economically? South will be best in winter, and at other times shade can be given if necessary. A small boiler and three-inch pipes will be the cheapest for a forty-feet-long pit, by five and a half feet in width.

SALVIA PATENS (*R. P.*).—The roots will not grow unless they have a bud at their top. In this respect they resemble Dahlias; better not divide them until they have sprung. *Young Heliotropes* should have their flowers removed; the plants will be stronger in consequence.

CAYENNE PEPPER FOR FUMIGATING (*L. R. Lucas*).—How much for a house 18 ft. by 12 ft.? Mr. Fish declines stating, as his experience in the matter is next to nothing. Would any other correspondent oblige if he can? Mr. Fish likes prevention better than cure, and for both purposes finds a puff of tobacco frequently applied, and not much at a time, an easy way of effecting both objects. When a plant is covered with aphides, unless it be very valuable, it will be the best economy to transfer it at once to the manure heap. The fly is easily managed if the first visitor is sent to the right about. *Steeping woollen netting* in a tan pit would, we imagine, act as a preservative; it does so in common twine netting.

PIT FOR GERANIUMS, &c., AND GOOSEBERRIES (*A Recent Subscriber*).—The idea, so far as we know, is a new one, but scarcely likely to be a very successful one. The pit is thirty feet long, eighteen inches at back, and twelve at front. Outside, at the back, you propose planting gooseberry cuttings, taking the branches through holes in the wall, and training them to a trellis close to the glass; and first you wish to know if it will shade the Geraniums, Verbenas, &c., below, too much; and, secondly, the best sorts for such a purpose, combining flavour and prolificacy. You will find the latter in a list of Mr. Errington's lately. Any good soil will do. But as to the first, the shade will be prejudicial as far as the gooseberries extend; and we do not see how you are to manage at all in such a shallow pit, nor yet the object you have in view; for if you force the gooseberries, by keeping the lights rather close, you will ruin the plants below; and if you give abundance of air to suit the plants, then your gooseberries will be little earlier than those in the open air; besides, if early gooseberries were your object, the plants should be planted inside, instead of in the cold ground at the north side of the back wall. Birds are now so common, and their ravages among the buds so enormous, that if they are not thinned, some method similar to yours must be adopted for securing such valuable fruit. By giving abundance of air, having your pit a foot deeper, you may keep your plants until the gooseberries are getting into leaf, and then remove them; and thus you may have gooseberries a fortnight or three weeks earlier, and escape the ravages of birds, &c.; and by midsummer, or shortly after, you may remove the sashes. If you mean to try, the following would best suit your purpose:—Pitmaston, Greengage, and Champagne, *red;* Champagne, *yellow;* Rockwood's Hairy, *yellow;* Keen's Seedling, *red;* Whitesmith, *white*. These are all rather early, and good bearers. Were we to select, we should use for such a purpose the Red Champagne and Keen's Seedling. The latter, besides being as large a fruit as the late Warrington, is good flavoured, early, and a great bearer.

INDIAN SHOT (*Harriet*).—This is the *Canna Indica*, and other Canna's. You would see it noticed the other week. Having neither a hotbed, nor a greenhouse, though you might manage to raise the plants in a window, by keeping the seeds in the pot covered with a square of glass, you could not do any good with them afterwards. As to their surviving the winter out of doors, that is altogether out of the question, as they will not stand any amount of frost. The rhisome roots of some of them resemble ginger roots, and possess a considerable amount of starchy nourishing matter. The seeds of some others are used as a substitute for coffee. All the family are ornamental.

LILIUM LANCIFOLIUM (*Ibid*).—This may be left out all the winter, if the ground is a light rich soil, well drained; and the bulbs are from six to twelve inches deep.

HYACINTHS (*R. W.*).—You ask for the treatment of those that flower in moss and water, when done flowering, adding—"I am afraid to turn them out of doors, lest frost should kill them; will they flower next year again?" That altogether depends upon your treatment. To succeed, you must give the leaves as much attention, in either case, as you did when you expected a fine flower. If you keep them in the water and moss, they must be equally well supplied with change of water, temperature, and light. If you transplant them, you should place those from the glasses in loose light soil, and with those in the moss do the same, keeping all the moss that would adhere about them. But to succeed, not a leaf should receive a check, either from want of water, cold, &c., until

they naturally begin to wither. At this busy season, so difficult is it to attend to all this, that it is generally preferable to get fresh bulbs for forcing every year, and consign those previously used to the flower-garden, or border, where, if they do not flower much the succeeding year, they will do pretty well in the second. Whatever is done with the bulbs, attention to the foliage, until it begins to wither, is the all in all for future success. Taking plants either from a greenhouse, or a comfortable room, and placing them out of doors, without protection, in March, would give the whole plant such a check, that the leaves could not appropriate a sufficiency of organiseable material to supply flowers the following season.

EXPORTATION OF CUTTINGS (*Subscriber*).—Soft cuttings of *roses* will not bear the journey to Italy, but shoots, with good eyes for budding, might easily be sent there in June; deprived of all the leaves, the ends stuck into a potato, and the whole wrapped in a cabbage leaf, and then covered with brown paper. *Geranium* cuttings would go that way, from May to August, without the potato. The several packages would be better in a deal box, nailed down, than in a tin box soldered. We have sent several kinds of cuttings and rooted plants that way, to Malta, but we prefer putting the roots in damp moss. You talk of six weeks or two months going to Italy, whereas you could get them to Calcutta, or half round the globe in that time.

FLOWER-GARDENS (*M. D. C.*).—We must be firm. No more plans can be looked at for the present; this announcemeut has been made long ago.

ANNUALS (*Elise*).—Your first attempt is not at all bad. No. 1 and 2 will do very well. No. 3, discard the Calandrinia, and use the purple candy tuft, not scarlet, for there is none such, inside the Alyssum. No. 4, discard the *Eutoca*, and *Flos Adonis*, and the other two will do.

CONCRETE WALKS (*W. C. E.*).—Dirty gravel is unfit for concrete walks, but a large proportion of sand is more favourable that not. On moist soil, the top layer should be of lime and gravel, but on any soil frost has the same effect on these as on the common walks, it loosens the surface, but the roller makes them firmer than when first made. It is not a new scheme, the thing is completely proved by seven years' experience.

INDIAN SEEDS (*Simpleton*).—We have seldom seen a more select list of Indian seeds than your's, every one of the plants are beautiful *in India*, but have long since been confined to botanic collections in this country. We would not give five shillings the bushel for the usual collections of seeds, introduced annually from public collections in India. The days for private botanic collections are gone. The best of your seeds are 5, 10, 17, 20, 22, and 23; 22 is a splendid low tree with large trumpet-like flowers, but no one can flower it here.

PLUMBAGO ROSEA (*A. B. C. D.*).—You say the little growth they make in summer, dies away before they flower in winter. Grow and flower it in summer. Thus, as soon as, by and by, the shoots are a few inches in length, shake the old soil from the roots; pot in sandy loam and peat; plunge in bottom-heat for a month or two; encourage shoots, which, by and by, will be crowned with flowers. When done flowering, ripen the wood by exposure, and keep the plant rather cool and dry during the winter. Cutting down the shoots either in autumn or spring according to your fancy.

PHŒNOCOMA PROLIFERA CUTTINGS (*Ibid*).—Read the description of the propagation of the tenderest *Chorosema* given lately; take off the small side shoots, about an inch in length; remove the little tuberculed foliage from the base, and insert firmly in sand round the side of a pot that has been fixed inside of a larger one, and cover with a bell-glass, and shade in sunshine. Propagate now, or any time within these two months.

HEATED CELLAR (*J. C.*).—Glad you have succeeded so well with rhubarb, mushrooms, and sea-kale, and are rather at a loss what else to advise you to try in the vegetable way. *Asparagus* you should put at the coldest end, and do not raise the heat too high, from 55° to 60°, is quite high enough for all the purposes you mention. By allowing it to come more gradually, and cutting the asparagus a day or two, and setting it in a saucer, with a little water at its base, in full light, in a window or elsewhere, the bitter taste, we think, would not be complained about. In such a cellar, you might have some old potatoes producing waxy young ones, if you like them, or you might spring others for early forcing. You might also secure abundance of *endive*, blanched for salads, or even *chicory*, with scarcely any trouble. The leaves thus eaten, would be quite as good for us as having the roots mixed in our coffee, &c.

CLIMBERS (*Sancho*).—The *Mandevilla suaveolens* and *Pharbitis Learii*, will both answer well on the spare part of your back wall in your house, which is a combination of the vinery and the greenhouse; but they would answer better if your father would let you take a slice of the roof room, as they dearly like to ramble. If not, you cannot do better than let them climb up one wire for a support, and then bring them down another, though rather against the grain. Instead of planting out in such circumstances, they had better be kept in large pots, in peat and sandy loam, obtaining, during the summer months, a dash from the manure tank.

ARNOTT'S STOVE (*Ibid*).—We hardly comprehend you here. See Mr. Fish to-day. He and Mr. Errington seem to be at one as to heating, and reducing the temperature at night. A stove in the house is always objectionable, because, when very hot, the air is robbed of its moisture and oxygen. But we cannot see how of necessity, when you light a fire, the temperature should be 55° at night, which is more likely to draw your greenhouse plants than 60° or 65° during the day. Neither of them would be out of the way for starting vines. Neither do we see why you should light a fire either night or day unless when it was wanted. Why the fire in its strength should not be in proportion to the weather without; nor why a fire, once lighted, should be so made up as to burn all night, and thus create those alternations in temperature you are anxious to avoid; nor why, in a very dull cold day, you should not have a small fire during the day, if even it should not be wanted at night. Have you no damper to regulate the draught; no means of limiting the air that keeps up the combustion? If not, supply them, and the consumption of coke will not be so alarming, while you have it under command.

HEPATICA—VIOLETS (*L.*).—The best soil for the Hepatica is a deep sandy loam, and not to be often disturbed. *Violets* should be divided and transplanted every year. The Single Russian at the end of February, and the double ones when they have done blooming in April; or the runners of either may be removed in summer as soon as they have rooted. They like a rich light loam. Your proposed measures of bone and guano for the upland field is a fair dressing for grass and barley.

MARL BANK (*J. K.*).—If it stands the frost, and that you can make a good border for the roots of fruit-trees, such as Mr. Errington recommends, you may consider it in all respects as a brick-wall having a south aspect; Peaches, Apricots, and the best desert Pears, which you will see in our lists, will ripen fruit against it.

GLADIOLI (*R. G. C.*).—If you keep them in pots, put *G. psittacinus* and *gandavensis* into pots one size larger when the leaves are six inches high; but all of them would do better planted out into a good deep border, say the first week in May.

POULTRY-YARD (*W. H.*).—Your hen-house and walk must be very good. With such a place you may keep as many fowls as the house will well accommodate. A *Spanish-hen* should undoubtedly have a white cheek. Can any reader tell the points of beauty and value of the true bred *Jungle fowl?*

TRELLIS—FRUIT-BORDER (*Bealieu*).—The shape of a trellis is a mere matter of fancy. You must, of course, first collect the water, and then provide for carrying it off. Introduce plenty of coarse rubble, and lead a drain from the bottom. Secure eighteen inches of sound soil, adding turfy material; but little manure. Not less than six feet wide. Road-scrapings will do good in proportion to the stiffness of the soil. Why did you not name the aspect? Who can advise kinds without this?

TYING-DOWN PEAR-SHOOTS (*Philocarpus*).—Our plan of tying-down shoots looks not only "well on paper," but on our walls; and which, having been under the practice for some fifteen years, sufficiently attests the propriety of the course. During this time we have made many converts amongst soundly practical men, and we must still endeavour to proselytise. Surely you did not expect your shoots of one year old to be covered with buds? We tie down our shoots, whilst growing, as much as possible; they are not brittle then. The soil ought, if possible, to be fresh for *Peas*. This, perhaps, is what the poor people mean; for it then requires no manure. Peas always pod best on fresh soil, which does not need manure. Whether *Honeysuckles* cross each other or not is a matter of fancy with the owner. In situations of "high dress" it is, perhaps, better taste to train them artistically. Roll all your young seeds, if you can, when thoroughly dry, with a light roller. For the *Dog-distemper*, game-keepers place some reliance on the Hellebore leaf, which is thus administered:—A pair of the lower leaves are for twelve hours stewed or boiled in water; and they only give this dose once to a full-sized dog. What is termed *Turpith's mineral* is, however, esteemed best. Six grains to a full-sized dog; half that quantity to a puppy. The Hellebore they use is the Helleborus fœtidus, known by the following English names: Bear's-foot, Setterwort, and Stinking Hellebore.

VINES (*Rev. R. Blackburn*).—We should take one *Dutch Sweetwater* for earliest, then one *Muscadine* to succeed it, next two *Black* or *Wilmot's Hamborough*, and one *West's St. Peter's* for very late purposes. The St. Peter's at the hottest end, next the Sweet-water, then the Muscadine, and at the coolest end the Hamboroughs. You will *not* get more grapes by giving up the back wall. The front wall on arches, by all means, and so arrange the soil that the roots may go freely in and out; and, if you can, plant inside. The *Frontignans* are all liable to what is termed shanking—the *Grizzly*, we think, least so. The *Muscats* resemble them in flavour, but they are shy, unless much heat can be afforded them. Surely your border must be narrow, or your trellis very high. A five-feet trellis on an eight or ten-feet border would not shade much until nearly winter, when the shade would be unobjectionable. We should have used an horizontal or inclined trellis (see page 304 of present volume). Do not trouble yourself about the atmosphere to your walk roots—they will be all right: you will have control enough and to spare between each two trees. You can, however, arrest the roots on that side if you prefer it. We should never employ *live* edging.

CUCUMBER HOUSE (*C. C.*).—You can easily grow cucumbers in your vinery if you admit light to them; but you must keep your bed nearer the glass than the floor line. Remove your *roses* directly. For *annuals under the shade of your trees*, try Escholtzias, Nolanas, Mignonette, Kaulfussias, Goodetias, Clarkias, Collinsias, Lobelias, Calandrinias, Alyssum, Leptosiphons, and Virginian stocks; but you must not expect much success.

VERBENAS ON E. BORDER (*Sarah*).—A border with an easterly aspect will suit your varied verbenas very well. We grow our specimens in a similar aspect, and very well they flower. *Buds of Camellias* should never be wetted after they begin to swell for blooming. Before that it will do them no harm. Rain from the clouds in autumn, when out of

doors, is rather advantageous. The *annual* 10-*weeks' stocks* may be sown in August, potted and kept under a frame, and again in March, in a gentle heat, and transplanted in April. *Biennial stocks*, such as the Queen and Brompton, should be sown in June, and transplanted into a warm border, six inches apart; or some may be potted and kept under glass in a cold frame through winter, planting them out in April where they are to bloom. Your *Azalea indica alba* does not produce healthy leaves or flowers. We can only say, pot it in fresh peat and sandy loam, with a little leaf-mould; place it in gentle heat, and it will produce new shoots and leaves, and these will certainly be followed by flowers. Your *Anemones* and *Ranunculuses* cannot be taken up till the leaves are quite withered. If you take up before, the bulbs will be small, shrivel, and probably perish.

WEIGELA ROSEA (*Linda*).—This you may prune yet very safely. The accent is laid on the *ge* of this name.

EVERGREEN SHRUBS (*A Bury Subscriber*).—The following shrubs will suit you "on the edge of the moors:"—"*Evergreen Box, Evergreen Privet, Berberis aquifolia, Aucuba Japonica, common Rhododendrons*, if you can get peat soil; the *Snowberry, Mountain Ash*, and the *common Hazel*. These will all grow under the drip of your tall trees, but you must stir the soil well and deep previously to planting, and give them some fresh loam about their roots when you plant them.

NAMES OF PLANTS (*J. B. H.*).—Your plant with the mis-spelt name we have no doubt is *Sericographis Ghiesbreghtiana*, a name quite sufficiently intractable when spelt correctly. It is a warm greenhouse or stove evergreen. Being bare stemmed and otherwise mismanaged, cut it down forthwith, repot it, after shaking off most of the earth at present about its roots; replace it with a mixture of equal parts of loam, fibrous peat, and leaf-mould. Plunge it in bottom-heat to start it, if it be only a cucumber-bed. It used to be called an *Aphelandra*. (*J. F. W.*).—Your fern is the Common Polypody (*Polypodium vulgare*). (*Kingston*).—Your plant is *Coleus fruticosus*, or as it used to be called *Plectranthus fruticosus*. It is a native of the Cape of Good Hope, and is very frequently seen in the windows about London under the name of the Ivy-leaved Geranium. (*E. P. Exeter*).—*Asparagus racemosus*, a stove plant not worth keeping in a good collection.

DISEASED CACTUS (*L. C.*).—It is infested with a species of scale (*coccus*). Sponge the leaves frequently with water, of the temperature of 115°, and keep the air of your house more moist.

LUCERNE (*J. B. H.*).—On no account sow clover among it. No good Lucerne can be grown unless the hoe is continually employed to keep down weeds, and the soil open between the rows; and how could you do this if clover was there?

STALL-FEEDING SHEEP (*Sigma*).—This may be done, but the floor of their pens should be of earth and kept clean, otherwise they are liable to diseased feet. They fatten rapidly.

ALDERNEY COWS (*Ibid*).—In keeping a cow, the profit arises from her milk and butter. Her calf is of comparative indifference in the debtor and creditor account, for it should be sold a suckling. The butter of an Alderney keeps as well as that of any other cow, fetches the best price, and the cow eats less than one of any other breed.

DAHLIA LIST (*Elizabeth*).—Yours is a good selection, but you will see one more extensive in our columns to-day.

DIELYTRA SPECTABILIS (*F. S.*).—Can any of our readers say where a coloured drawing of this species can be seen? It was introduced in 1810, soon lost, and again introduced recently by Messrs. Knight and Perry. There are coloured engravings of three of the other species—*D. cucullaria, eximia*, and *formosa*, in Mrs. Loudon's *Lady's Flower-Garden of Hardy Perennials*.

DISEASED ONIONS (*Verax*).—Our correspondent says—"In the spring of last year I sowed my White Spanish Onions, which came up and matured well, and furnished me with an abundant and, as I thought, first-rate crop for the winter; but in this respect I have suffered great disappointment, inasmuch as you will find, on opening the onions I have sent, that the interior of each inner circle is woolly, and, my cook says, simmers down to *nothing* but water; whilst the *outer part* remains *hard*, tough, and unavailable, and unfit either for sauce or to fry. The treatment of the onion-bed was the same as I have ever given it, and they were quite ripe when got in, and housed in *dry weather*. The onions were strung in ropes by my gardener as usual, and have been kept hung up in the same dry keeping-place I have used for years. The cook did not perceive the fault, as now described, in the onions *until two months ago*, since which they have got *gradually worse*; the largest are the worst. My gardener says they have began to sprit much earlier." The early spritting, or failing to sprit, of your onions is the sole cause of your onions becoming so unserviceable; in either case the effect is similar; and the early effort is a consequence of the extremely mild winter. We have known onions, kept as usual, that were just like yours, whilst others hung up in an ice-house were in perfect order.

POTATOES AFTER TURNIPS (*J. Fairie*).—If you sow turnips, they will be off the ground quite in time for autumn-planting potatoes. You may replant your *Box-edging* now. You will find all you require in *The Cottage Gardeners' Dictionary*, now publishing. We cannot reply by post.

HERACLEUM GIGANTEUM (*E. C. B., Tewkesbury*).—We think this will grow, as you require, in a large tub; but it ought to be at least thirty inches in diameter. Messrs. Hardy, of Maldon, will perhaps say something about it in our pages. They have paid particular attention to the plant. Pot your *Cineraria seedlings* five or six together in pots or pans, and when they have made more growth, then repot them singly into small pots. The best soil for them is a compost of turfy loam, two parts; fibrous peat, one part; decayed leaves, one part; decayed cow-dung, half a part; and a little drift sand.

FIVE POUND GREENHOUSE (*Elphin*).—If you refer to No. 113 of THE COTTAGE GARDENER, you will find drawings and descriptions of the mode of heating and shading this economical structure.

DUBLIN IRREGULARITIES (*F. L.*).—The fault rests entirely with the Dublin bookseller; our Dublin agent is supplied in time to deliver THE COTTAGE GARDENER on *the very day of publication*. We will enquire further.

PLEURO-PNEUMONIA IN COWS (*Isabella*).—Our correspondent says she is "living in a neighbourhood where cows are dying by scores of this malady." Can any of our readers inform us of any mode of treatment which has been successful? Professor Simonds recommends a diseased animal to be kept away from the uninfected, and in the early stage of the disease blood to be taken from it until the pulse falters; diuretics, such as nitre in water, to be given, and clothes to be put over the animal to promote perspiration. It is very evident, however, that the veterinary profession have not yet mastered the disease.

LARGEST CUCUMBER, MELON, AND PUMPKIN (*W. N. J.*).—The *Snake* is the longest cucumber, whilst the *Rock* melon and the *Mammoth* pumpkin are the largest. It is more worthy of inquiry which are the *best*.

CONVOLVULUS (*L. P. S.*).—The *major* is the climber. We cannot tell you where you can buy *geraniums* true to name at three shillings per dosen.

BOTANICAL WORK (*K. C. B.*).—*Loudon's Encyclopædia of Plants* describes foreign as well as British plants.

INDEX AND COVER (*E. N. S.*).—You can have a complete Index for each volume of THE COTTAGE GARDENER. You can have a cloth cover for each volume for one shilling.

BACK NUMBERS (*G. Westley*).—You can have the back numbers of the last volumes. Apply to some other bookseller, if your present one does not procure them for you. *Lilium lancifolium* culture is described very fully in our second volume, page 175. You can have *Calceolaria seed* from any of the florists who advertise in our columns.

POTATO-PLANTING (*Rusticus Clericus*). — He who defers potato-planting until now, will most assuredly reap his due reward,—namely, a diseased and deficient crop. We have written so fully, and for the last five years warning, against late spring-planting, that we turn, with distaste from the task of counselling how to proceed under such neglect. However, plant whole middle-sized potatoes; plant an early-ripening variety; plant six inches deep, and use no manure.

BROCOLI-SOWING (*J. S. G.*).—Sow your *Grange's Early White* in the first and third weeks of April, and the second week in June. We do not know the *Early White Malta*, but think it does not differ from Grange's. *Chapell's Cream* and *Snow's Superb White*, sow the second week in April. They are not varieties to keep you supplied in succession.

MICE (*L. B.*).—To prevent these eating your peas, cover the rows two inches deep and 12 inches wide with finely-sifted coal ashes.

HEATING SMALL PIT (*M. N. O.*).—In the plan given in our 4th vol., page 56, you may use advantageously a cast-iron pipe for passing through the fire. Lead pipes are not *bad* conductors of heat, and will be found efficient. There is no danger of scorching in the arrangement. Two-inch pipes would be better for a *larger* structure. If we had our choice, we should prefer a hot-bed of tan, and a cold pit as you propose.

BEE-FEEDING AND DEPRIVING (*A Subscriber from the first*).—Will our correspondent, who wrote a paper on this subject at pages 277-8, send us a description of his floor-board, his hive, and his tin-hive jacket? *Corks* drive into bottles more easily if wetted; and it is not necessary to tie them down if driven in tightly, much less need they be wired. Sealing is totally useless. We cannot answer your other queries.

CALENDAR FOR APRIL.

ORCHID HOUSE.

AIR may now be given pretty regularly by ten o'clock, shutting up at three in the afternoon. BASKETS should now be regularly taken down once a week, and, if dry, dipped over the compost in a tank of tepid water. BLOCKS with plants on, continue to renew, if required, and let them be wetted at least once a day, or twice if the sun shines brightly. HEAT may be increased as the days lengthen and the plants are growing freely. Day temperature, 76° to 80°; night, 60° to 70°. NEOTTIAS, and other terrestrial winter flowering orchids, repot, and keep rather dry till new growth appears. ONCIDIUM: numbers of the species will now be growing, and ought to be repotted directly, before new roots begin to form. INSECTS, such as thrip and green fly, destroy by smoking frequently with tobacco; other kinds destroy by keeping quite clean with a sponge; cockroaches destroy, as advised in the Calendar last month. PHALÆNOPSIS, dip daily in tepid water. STANHOPEAS that have finished their growth will now be showing the flower-spikes, and must not be disturbed, or the stems might be broken; they are very tender. SYRINGING, apply freely, both to wet the baskets and blocks, and to raise a dewy soft atmosphere in the house. WATER, give freely now the plants are growing. PLANTS IN FLOWER, remove out of the hot moist house into a cooler and drier one, to prolong their bloom.

T. APPLEBY.

PLANT STOVE.

Finish all POTTING, except for young cuttings or plants, early in the month. Finish potting all the GESNERADS. Keep every part of the house in perfect ORDER and CLEANLINESS. AIR, give freely (except frost happens) early in the morning, and close up early in the afternoon. SYRINGE when shutting up, to cause a dewy air in the house; this will refresh the plants greatly. AMARYLLISES, finish potting, and plunge into a bark pit to encourage fine leaves, and, thereby, large fair bulbs; even *A. aulica* may be potted the last week in the month. CEREUSES, tie in, but not too trimly, like a bundle of sticks, but allow plenty of space for

of every kind to have room to breathe and grow. WATER, arly and freely to every growing plant. INSECTS, destroy by s till they are quite extirpated; give them no rest day or night, increase so rapidly as to almost destroy, and certainly to dis- plants greatly during the hotter months. IXORAS, if not st month, must be so without delay, and, if convenient, place ng-heat, and tie out to form bushy specimens.

T. APPLEBY.

FLORIST'S FLOWERS.

AS AND POLYANTHUSES towards the end of the month will their flowers, and previously to that will require close atten- the roots duly refreshed with plenty of water. The *Auricula* ave the leaves watered; their fine powder will be washed off, ir beauty diminished. CARNATIONS AND PICOTEES, finish o their blooming pots; shelter from heavy rains, but gentle ers will benefit them greatly. CINERARIAS will now be oom, and will require a light shade from bright sun; water smoke them frequently. CALCEOLARIAS require the same but, in addition, a freer admission of air, as they might sud- off. DAHLIAS; cuttings may yet be made; early struck ce in cool frames, and give abundance of air to strengthen repot to prevent the roots from becoming pot-bound; nay be divided and planted out at once into the borders, iple of spadesful of dung to each plant HYACINTHS in beds in great beauty, and must be carefully sheltered from rain winds. PANSIES AND PINKS, top-dress with two-years' old, posed manure. *Pansies*, peg down, and tongue the long y will strike roots, and produce much finer flowers. RANUN- ill now be growing rapidly, and should have the ground made by treading between the rows; water freely in dry weather, from frost, sleet, and cutting winds. TULIPS, shelter in a from similar unfavourable weather. All this attention is necessary if it is desired to bring the flowers to perfection.

T. APPLEBY.

FRUIT FORCING.

-HEAT, renew; do not exceed 85° on any occasion. CUCUM- bers, secure a very moist air to; in frames, frequently renew op frequently. CAPSICUMS AND CHILIS, pot off, and for- BERRIES; keep a drier air, and the most liberal ventilation. the young shoots when five or six eyes long; see that the ermanency of moisture. FLOORS, water frequently. GRAPES; our, increase the dryness of the air and ventilate freely; Grapes eep a drier air, with free ventilation. INSECTS, promote a ir with. KIDNEY BEANS, water with liquid manure as soon om; pot more. MELONS; frequently renew linings; stop a o beyond fruit, and keep down late laterals. PINES; finish ing and arrangements. PEACHES; disbud slowly. SHADING, ooted things if the sun is powerful. SYRINGING; practice with all but ripening fruit. STRAWBERRIES, water freely manure; keep down runners. TOMATOES, get forward, and THERMOMETER, watch carefully; beware of extreme night ES, disbud, stop, and thin berries. WATERING, perform d regularly.

R. ERRINGTON.

FLOWER GARDEN.

s (Tender), prick out those sown in February and March into water gently but often; sow in hotbed; (Hardy) may be sown &c., to remain; thin those advancing. AURICULAS in bloom, ee HYACINTHS.) Supply with water often; those for seed, s in a sheltered border, where they can have sun until 11 ant offsets; propagate by slips; seedlings shade during mid- CULAS done flowering, place out of doors, and separate off- edgings may be made, and old taken up, slipped, and re- ip box edgings. BIENNIALS, finish sowing, b.; plant out last spring. BULBS, in water-glasses, done flowering, plant after cutting down stalks, but not leaves; autumn-flowering, store. CARNATIONS, in pots, give liquid manure every third weak, and water often; stir the earth; sow, e.; plant into CLIMBING plants, train and regulate. Layer RHODODEN- hardy AZALEAS. DAHLIAS, plant to remain, b.; or in pots, in a frame until May. DRESS the borders, &c., indefatigably. aise, by supporters at the bottom, as the plants within grow ss, mow once a week, and roll oftener; trim edges; dress if poor; and sow seeds, especially white CLOVER. GRAVEL, lay afresh in dry weather; roll after rainy weather often. ND RAKING are still the standard operations. HYACINTHS, m sun by an awning or matting over the beds, from nine to the same shelter in bad weather day and night; those done ake up as soon as the leaves decay; separate offsets and store. lestroy with tobacco smoke, or hellebore powder, or dusting of ff. MIGNONETTE, sow in any warm border. MULCH, put newly planted. PINKS, sow. POLYANTHUSES, sow; plant ropagate by offsets, b.; last year's seedlings now in bloom, for propagating. POTTED PLANTS, give fresh earth to, if not onth; shift into larger pots; water freely. PERENNIALS, those pring may still be planted, and propagated by offsets; finish TICKS are required to blooming plants. TULIPS, shelter from et; take off pods to strengthen bulbs. WATERING is now ore frequently, yet moderately; give it early in the morning. USES, water freely, and press the earth very hard between the SES, thin buds where very abundant; watch for grubs in the rush them; make cuttings of *Gloire de Rosamene* to bed next BACCO WATER, use to destroy the aphides, by dipping the where the insects are.

D. BEATON.

FRUIT GARDEN.

and other fruit-trees may be planted, though full late. BLOS- ll-fruit, protect and retard. BUDDED (Trees), last summer, oul; also head back the stocks. CHERRIES may be planted. DISBUD wall-trees and trained espaliers of superfluous buds, in a pro- gressive way. FORCING fruits in hothouse, attend to, on similar prin- ciples. GRAFTING (late kinds of Apples, Pears, and Plums) may be done still, b. GRAFTS, lately inserted, see that the clay is firm, and rub off shoots below the scion. HEADING DOWN Wall and Espalier trees, finish, b., if not done last month. INSECTS, search for and destroy. LIME (early in the morning), dust over the leaves of trees affected by Caterpillars. MULCH over the roots of newly planted trees to keep in moisture. PEACHES may be planted. PEARS may yet be planted. PLANTING in general may yet be tried, to prevent a season being lost; much care must be taken. PLUMS may be planted. PROPAGATING by layers, cuttings, suckers, and seed, finish, b. PRUNING, finish, b.; stop young shoots if too luxuriant. STAKE trees newly planted. STRAWBERRIES, remove runners from, as they appear, and top dress; water in dry weather those in bloom; plant *Alpines*. VINES, propagate by layers and cuttings, b.; summer dress; in Vineyard stake and hoe frequently; old borders manure; plant house vines. WALL-FRUIT, thin generally. WASPS, destroy; every one now killed prevents a nest. WATER abundantly freshly planted trees.

FIG-TREES may have their winter-covering partially removed at the beginning of this month, and entirely by the commencement of May; and they may then be pruned and trained. Newly GRAFTED TREES are benefited by being sprinkled by the water engine during dry weather.

Watch for the CATERPILLAR on the gooseberry bushes. Observe the directions about PEACHES in THE COTTAGE GARDENER, and use the sulphur mixture; also the tobacco water when the trees are fairly done blossoming. Watch the development of the AMERICAN BLIGHT, and use the brush. Apply soft-soap water to the stems of PEAR-TREES infested with the SCALE. Top dress RASPBERRIES, also all BUSH FRUIT, if requisite. Remove all SUCKERS from filberts; also from all bush fruit, wall trees, espaliers, &c. Let all FRUIT BORDERS be dressed and edged as a finish to the garden, taking care to make sound walks.

R. ERRINGTON.

GREENHOUSE.

AIR, admit freely in mild weather; give sparingly when east winds prevail, and then merely by the top sashes, to avoid cold draughts; shut up early in the afternoon, and if sunny sprinkle the plants from a fine syringe when it is desirable to encourage growth; plants making their growth should, therefore, if possible, be kept apart from those in bloom. AZALEAS coming into, and in flower, water freely; those to be retarded remove to a north aspect, under glass or even an opaque roof; a temporary protection by mats, canvass, or oiled cloth will answer admirably. BULBS, introduce. CAMELLIAS, water freely when in flower; those done flowering keep close, to encourage growth, and shortly afterwards repot if necessary. Sow seeds; beware of burying the smaller ones; the pots should be well watered previously, and when settled, the seeds sown, slightly sprinkled with a little sand, pressed down, and a square of glass or a piece of paper put over the pot; for these, as well as striking cuttings of tender plants, inarching and grafting, a sweet hotbed would now be desirable. CALCEOLARIAS, CINERARIAS, PRIMROSES, CYTISUS, &c., assist with manure water, weak, but given often. CACTUS, the late kinds water at the roots, after swelling the stems by syringing. CUTTINGS, insert; place in hotbed or shady place according to kinds. CLIMBERS, regulate. EPACRISES AND HEATHS done flowering, cut back, and also any other *straggling plants*, and keep them by themselves, so as to be close and warm, to encourage them to break freely; those in, and coming into flower, keep in the airiest part. FUCHSIAS, water the forward ones freely; *fumigate* with tobacco at the first appearance of fly. GERANIUMS, train the first, encourage the second, and pot and propagate for autumn supply. GESNERA, especially Zebrina, and GLOXINIA, various varieties, start in a hotbed; the roots may be kept safely during winter, if dry, in a temperature of from 40° to 45°. *Prepare* for general POTTING by getting soil, pots, &c., in order, but do not let a plant wait for a *time* when it wants attention. PROPAGATE by seed, roots, cuttings, inarching, and grafting; young plants thus get strong before winter. SEEDLINGS, remove as soon as possible from the seed-pans, and prick them out singly, especially if thick. Sow balsams, cockscombs, thunbergias, &c. POT the various *Achimenes*, and introduce tubers for a succession. Remove decayed LEAVES. *Stir* and loosen the surface *soil*. SUCCULENTS of all kinds water more freely. WATER for all plants will now be required oftener. VINES on rafters, train. STRAWBERRIES, set in; even a few on a shelf is a great luxury, and where the vine is scarcely forced, where greenhouse temperature is merely maintained, with a rise from sun heat during the day, the fruit may be obtained a month earlier than in the open air; keep the plants rather dry until the flower trusses show themselves boldly, then water freely.

R. FISH.

KITCHEN GARDEN.

Let the head and the hands work together; be on the alert to any sowings that ought to have been performed last month. ALEXANDERS, sow, b. ANGELICA, sow, or plant out autumn sown. ARTICHOKES, plant and dress off. ASPARAGUS, sow or plant; dress off beds; attend that in forcing; water with liquid manure; water once a week. BALM, plant. BASIL, sow main crop on gentle hotbed. BEANS, plant in succession; attend to earth-stirring the growing crops. BEET, of either kind, sow, m. BORECOLES, sow, and leave for seed. BROCOLI, sow main crops, m.; attend to pricking out any early sown, and save for seed. BORAGE, sow, and earth-stir autumn sown. BURNET, plant or sow. CABBAGES, sow, plant, or prick out, and earth-stir often. CAPSICUMS, sow in hotbed. CARDOONS, sow. CARRAWAY, sow. CARROTS, sow main crops, m.; attend to thinning early frame or other crops. CAULIFLOWER, sow, prick, or plant out; attend to earthing up the hand-glass crops, and assist them with soakings of manure water. CELERY, sow for late crops, m.; and attend to pricking or planting out early sown; save for seed. CHAMOMILE, plant. CHIVES, plant. CHERVIL, sow; save for seed. COLEWORTS, plant. CLARY, sow. CRESS (American), sow in succession. CUCUMBERS, sow for hand-glass and other crops; ridge out and attend to those in bearing as to thinning-out and top-dressing, or earthing-up. DILL, sow or plant. DUNG for hotbeds, prepare. EARTH-STIRRING, particularly attend to. FENNEL, old roots divide, and plant or sow. GARLIC, plant, if not done, b. HORSERADISH, plant

without delay. HOTBEDS for all purposes, attend to. HYSSOP, sow, or plant out old roots. JERUSALEM ARTICHOKES, plant without delay. KALE (SEA), sow, or plant, b.; carefully fork over old beds. KIDNEY BEANS (Dwarf), sow, b., where hand-glasses are at command; if not, sow, c.; and *Scarlet Runners*, c. LAVENDER, plant. LEEKS, sow, b. LETTUCES, sow in succession once a fortnight, and plant out; earth-stir among often. MARIGOLD, sow. MARJORAM (*Sweet*), sow main crop on gentle hotbed; (*Common Garden*), plant. MELONS, sow in succession; pot off; ridge out; attend to topping and thinning-out, weekly, the early crops. MUSTARD AND CRESS, sow in succession. MUSHROOM BEDS, make, and attend to. NASTURTIUMS, sow. ONIONS, sow main crop, b., if not done before. UNDERGROUND OR POTATO ONION, plant without delay, also the TREE ONION. PARSLEY, sow of either kind; leave for seed. PARSNIPS, sow without delay. PEAS, sow in succession; attend to sticking, &c. PENNY ROYAL, plant in a cool situation. POTATOES in frames, attend to. RADISHES, sow in succession; attend to thinning young crops. RAPE, sow. RHUBARB, sow or plant; bring forward by inverting pots or tubs over old crowns. RUE, plant. SAVOYS, sow. SALSAFY, sow main crop, c. SCORZONERA AND SKIRRITS, sow, c. SHALLOTS, finish planting, b. SORRELLS, plant. SPINACH, sow once a fortnight; thin out; and leave for seed. TANSY AND TARRAGON, plant. TOMATOES, sow in hotbed. TURNIPS, sow, b. and c.; leave for seed. VEGETABLE MARROW, sow in hotbed. WORMWOOD, plant.

T. WEAVER.

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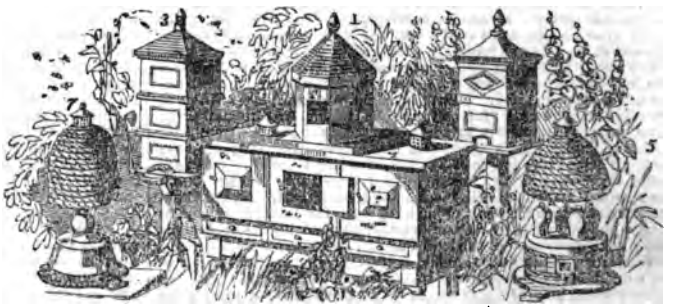

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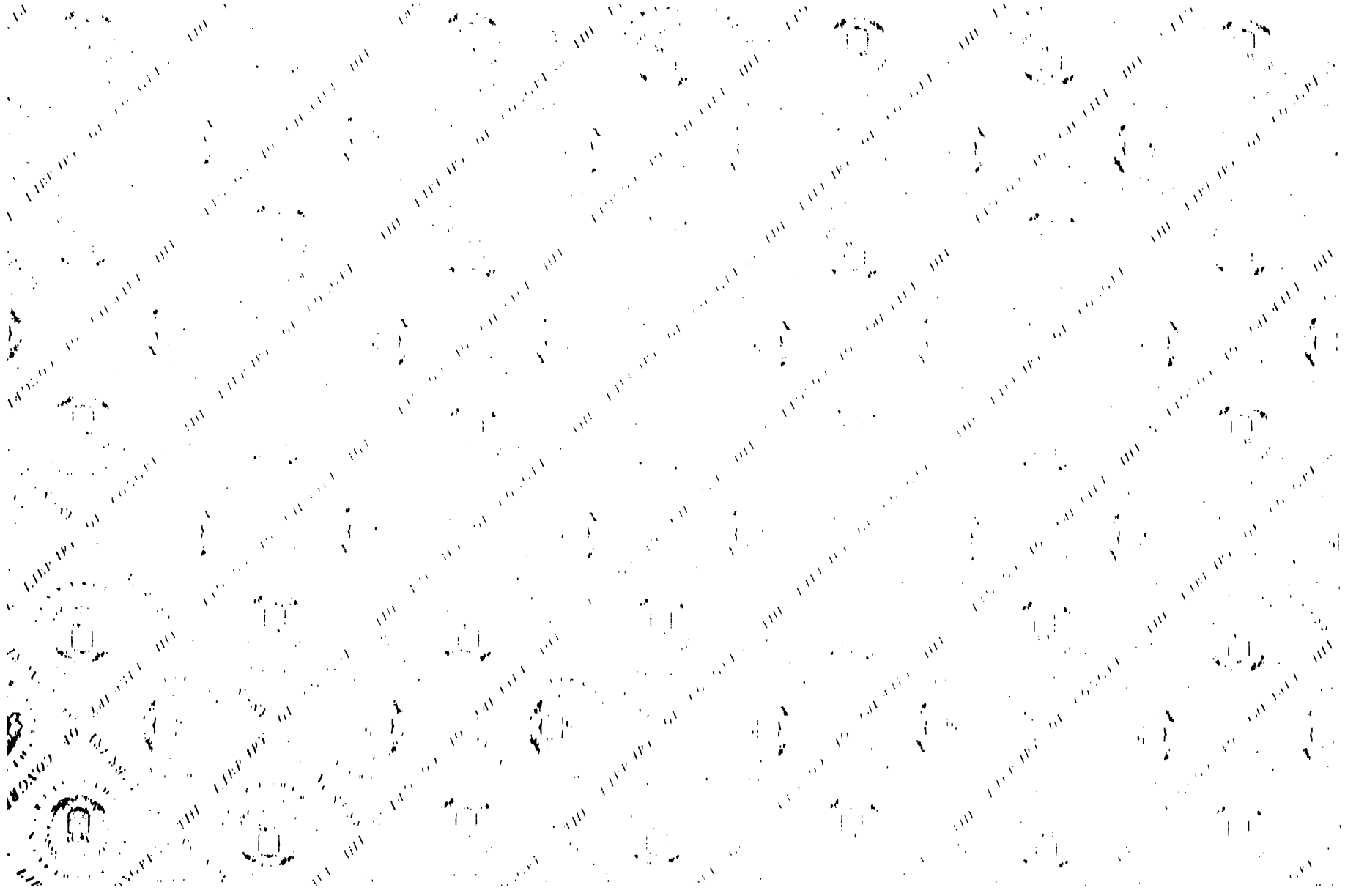

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